

Arrow Making Basics

Karrick de Castele

Several things are required to make arrows. Following is a list of supplies and tools that are needed to do the job. Most sets of arrows are made in dozens. Most archery competitions require rounds of six arrows. By making a dozen at a time, you are reasonably sure of having at least six good, matched ones at any given time. Arrows have a high attrition rate, and you should expect to lose or break some over time. This is, unfortunately, quite normal. Learning to make your own tackle is a good way to learn more about the mechanics of archery, and what it takes to be a good shot.

Raw Materials

Shafts

Several types of wooden shafts are available on the market today: Port Orford cedar, Douglas fir, High Mountain pine, Boyton pine, and chundoo to name a few. Stiffer shafts are needed for heavier draw weight bows. Wood with long, straight grain is the best. If you are able to select straight shafts, then better arrows will result. However, you will need to straighten most shafts in any case. Most arrows are of the parallel type; that is, the sides are straight for the length of the shaft with no changes in width. Shafts come in 5/16, 11/32 and 23/64 diameters and in a variety of weights and stiffness' (spine).

Piles

Wide ranges of piles (tips) are available. For our purposes, we shall assume you are using a taper fit. This is where the shaft is trimmed down at the proper angle, usually 5 degrees, so that the pile fits neatly on the end of the shaft. The pile can also be in a range of weights. The best weight for you depends on your preference and the type of your equipment.

Nocks

There are many types of plastic nocks available today, and they all serve the same purpose. Self nocks, or cutting the nock into the arrow shaft itself, is also an option. The use of any particular style or type of nock is a personal preference.

Flights (fletching)

Flights are traditionally made from feathers. Grey goose feathers were the type most commonly used throughout England and Europe. Fancy arrows were made using the wing feathers of peacocks and other exotic fowl. Today, turkey feathers are used due to their abundance and superior flight characteristics. They are available in many colors and pre-cut shapes. Artificial, or vinyl, flights are called vanes, and are not used in traditional archery. The act of attaching flights to a shaft is called fletching.

Glue

Glue is used to fasten the nocks, piles and flights to the shaft. This requires two types of glue. High temperature hot glue, epoxy, or any other strong glue is needed for the piles. This glue should not be too brittle when cured, or the force of impact may break it. Lighter glue can be used on the flights.

Standard Equipment for All the Sets

Taper Cutting Tool

The tapering tool is like a pencil sharpener, and is used for cutting the shape on the ends of the shafts to fit the pile and nock.

Craft Knife or Saw

This is used to cut the shafts to the correct length.

Spine Checker

This is used to check the spine or stiffness of the arrow so that the shafts can be matched to the correct bow weight.

Light Weight Scale

This is used to weigh the shafts so they can be properly grouped into sets.

Fletching Jig

This is a device used to clamp the flights to the shaft. There exists a large variety of styles and types of fletching jigs. Again, selecting one is largely a personal choice.

Making the Arrow

Group the Shafts by Spine and Weight

The first step in making a good set of arrows is to match a group of six to twelve that have the same spine and weight. This is crucial to consistent shooting. To check the spine, place the shaft on the spine tester, hang a weight on the center of the shaft, then measure the amount of deflection. The more deflection there is, the more flexible the shaft, and the lighter the poundage of bow it should be used for. Each shaft should be weighed, and the shafts should vary by no more than 10 grams for the entire set.

The Correct Length

Cut the shafts to a length that is about one inch longer than the actual draw length to prevent accidental overdraws. With someone helping you, and while using a long shaft, draw a lightweight bow to your full anchor point. Have someone mark the shaft at the back of the bow. Now add one inch to this measurement and you have your draw length. Cut your shafts to the appropriate length.

Straightening the Shafts

Having straight arrows is one of the most important parts of good shooting. Straightening wooden shafts is fairly easy, but takes a learned and practiced touch to do it well. You will need a source of heat such as a bed of coals or a hot stove burner. Heat the part of the shaft that needs to be straightened. While it is hot, bend it the opposite direction to straighten the shaft. This can be done with your hands or with a tool such as a block of wood with a hole drilled through it. You can even use a block of wood with a large groove cut into it. This is much easier to demonstrate than it is to explain.

Tapers

Use the taper tool to cut the appropriate tapers on either end of the shaft, one for the nock, the other for the pile. Cut these tapers with care, keeping them centered on the shaft.

Stains or paints:

Once your shafts are cut and tapered, you may stain or paint them. There are many different methods and materials available for this. Once again, personal preferences come into play as you choose the colors and styles of finish that you prefer. Be sure to check for compatibility between the finish that you choose and the glues that you plan to use. Some glues will not stick to some surface finishes.



Nocks:

Plastic nocks can be glued on using any compatible glue. It is common practice to line up the groove in the nock so that it runs across the grain of the shaft. Check the nock to be sure that it is centered on the shaft. It is essential the nock groove on self-nocked arrows runs perpendicular to the grain so as to prevent the shaft from splitting. Self-nocks are for advanced arrow makers.

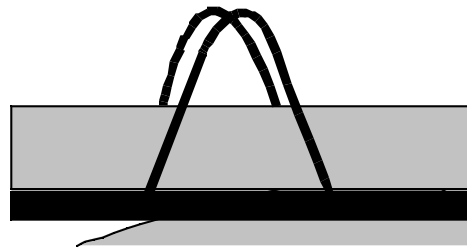
Piles

Piles can be glued on using hot glue or epoxy. With either glue, try to avoid bubbles inside the pile, and be sure to wipe off the excess that squeezes out when the pile is pushed onto the shaft. The piles must be centered on the shaft, and can be checked by rolling the shaft and watching the tip of the pile. If the tip moves up and down then the pile is not straight. If you use hot glue, be sure to heat the pile as hot glue will flash cure against the cold pile and not adhere properly.

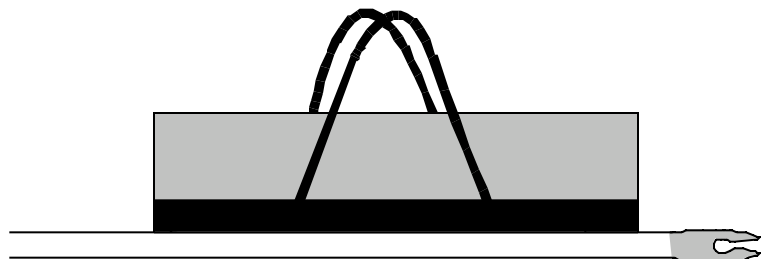


Fletching

Before you begin fletching, the nocks should be thoroughly dry. If the nocks are not firm, the arrow will rotate improperly in the fletching jig. This will result in unevenly distributed flights. Place the arrow in the fletching jig so the groove in the nock is horizontal. The first feather is the cock feather, which is a different color than the others. It will be at right angles to the string when the arrow is nocked onto the bowstring. Make a mark on the feather clip so that all feathers are applied in the same position along the arrow. If you use a different color feather for your cock feather, start with one of this color and place in the clip. With the fletching glue, squeeze a strip along the base of the feather and place the clip and feather firmly into the jig against the arrow shaft. This will need approximately 20 minutes to set up well enough to remove from the jig. Rotate the jig setting one step, and repeat with the second feather. 20 Minutes later, repeat with the last feather.



You can do this much faster with fletching tape. With the feather held in the clamp, place a strip of tape on the base of the feather, strip off the backing tape, and apply to the shaft. The clamp can immediately be removed, and work begun on the next feather.



Testing

This is the best part of making your arrows. Take your finely crafted new arrows to the range and shoot them. Hopefully you have done a good job, and your arrows will fly true to their mark. Enjoy!

