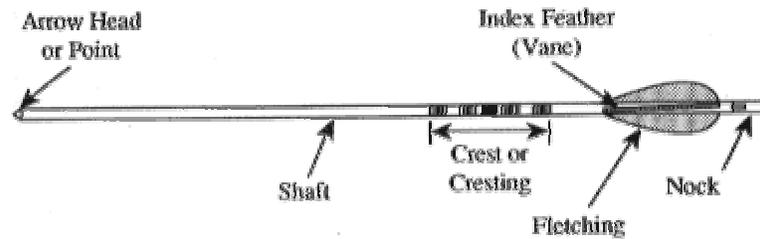


The Arrow



Arrows in the recurve (Olympic) bow events can travel in excess of 150 miles per hour, while compound arrows can fly in excess of 225 miles per hour. The shafts are made of either aluminum or aluminum with carbon fibers. Aluminum arrows are more uniform in weight and shape, while carbon arrows fly faster and provide less cross-wind resistance, and are therefore more useful in long distance outdoor archery.

The business end of the arrow is weighted and tipped with a target point, designed to penetrate but a short distance in the target butt. Hunting arrows, of course, use a different, extremely sharp cutting point called a field point. All NAA sanctioned events use only target points, except for certain Flight archery events.

Arrows come in varying widths. Carbon arrows, designed to minimize cross-wind interference at long shooting distances, have small widths, minimizing the wind's grip during flight. Larger widths are used for short distances and indoors. Since the arrow need only just touch a line in order to score the higher point, wide arrows theoretically provide slightly better scoring advantage. FITA has ruled in the past that arrows may not exceed 11mm (.433 in) in width, and that has been lowered to 9.3mm (.366 in) after April 1, 2000.

The other end from the tip features a nocking point, a plastic cap glued or otherwise attached to the end of the arrow. Its two fingers grip the string until it is flung loose, and it provides a protection for the arrow shaft by deflecting hits from later incoming arrows. This generally destroys the nock, but leaves the arrow reusable. Sometimes, of course, the aim is too perfect to deflect; the resulting "Robin-Hood" is both spectacular and expensive, as both arrows are usually destroyed.

On the shaft itself fletchings are glued to stabilize the arrow's flight. Sometimes they are glued in such a way as to cause the shaft to spin around its long dimension, further stabilizing its flight at a cost to its flat trajectory. The fletchings are generally three in number, one of which (the index feather) has a different color than the other two. The nock is installed gripping the string perpendicular to the index fletch, so that it's friends both brush the riser equally in passing, minimally disturbing the arrow's flight.

Fletchings may be plastic "feathers" or solid vanes, in a variety of shapes, lengths and, of course, colors. Markings, called crests, may be drawn on the arrows at the owner's discretion. All the arrows used in a tournament end must have identical shaft color,

fletching and crests. In addition, FITA requires that all arrows be marked with the owner's initials so that they can be unequivocally identified while embedded in the target.

Archery's Costs

Beginners' Level: Equipment can be rented for approximately \$3. Used beginners' equipment (bow, arrows), can be bought for less than \$100. Beginners' equipment (new) can be bought for about \$100. Basically, archery is like golf when it comes to equipment - if you want to go out and buy top of-the-line equipment at the start, you can spend up to \$1,500 or more.

Competitive Level: Equipment (bow, arrow, sights & other accessories) can range from \$800 to \$1,500., or more.

Coaching Costs: The cost of coaching varies upon the circumstances. Many coaches work on a volunteer basis. For youth under the age of 18, the NAA supports JOAD programs where they may have good basic coaching and intra-club, even national, tournaments for nominal fees.

Range Fees: Let's not forget the commercial enterprises that support the sport on a local level. Range fees for indoor ranges vary from \$5 per day to as much as \$7 per hour, depending on local costs. Outdoor (and some indoor) ranges are run by clubs or local government agencies, like park and recreation districts. All generally have a nominal, annual fee for the use of the facilities.