

## Chapter 11

# BOW AND ARROW TRAINING



### Objectives

- List the four types of bows
- List the parts of a bow
- List the parts of an arrow
- List the 11 steps to shooting success
- Know the proper shooting form when shooting from a tree stand
- Know what the limitations of your bow is in the field



### Introduction:

Bow hunting is a sport that has been around for thousands of years. Much has changed since those original bows, which were crafted out of bone or wood with strings made of animal sinew. Modern bow technology has grown tremendously in the last several decades. However, technology has not replaced the need for practice and proper technique. New Jersey has some of the longest and most productive archery seasons in the nation; about 1/3 of the Garden State's annual deer harvest is shot with the bow.

### Types of Bows:

Bows are broken down into four main types:

**Long bow or stick bow** - A long straight one-piece bow with a single bowstring. When you draw the bow energy is stored in upper and lower limbs. This bow is shot instinctively with no sights. At full draw you are holding the full draw weight. This is the oldest style of bow, usually made of wood.



**Recurve bow** - A bow made with curving limbs and a single bowstring. Because of the curve in

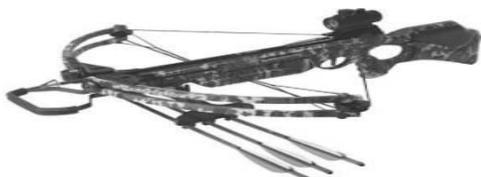
the limbs, more energy is stored when drawn making it more efficient than the long bow. This bow could be one piece or the limbs can be detachable from the riser in a take down style. Most of the time this bow is shot instinctively, but sights can be attached. Like the long bow, while at full draw you are holding the full draw weight.



**Compound bow** - The most common bow in use today uses a system of cables and eccentrics to store energy while shooting. Depending upon the style of the eccentrics there is a 40 - 80 percent let off from the peak draw weight. This allows the archer to be steadier at half the poundage while holding the bow at full draw without tiring. This style bow is designed to be shot with sights. Most modern compounds are also designed to be shot with a release aid.



**Crossbow** - The crossbow has its limbs mounted horizontally on a stock. The string is cocked and mechanically held in place while at full draw. A squeeze of the trigger shoots the arrow. Because of how short the limbs are, they shoot extremely high draw weights, usually 100 - 200 pounds. They are often equipped with scopes. The ballistics of the arrow is about equal to that of a modern compound.



## Parts of a Bow

Here is a full list of parts you may find on your bow. Don't be alarmed if you don't have all of them on your bow. Not all the parts on the list are required for your bow to shoot properly.

**Arrow Rest** - Where the arrow is placed while shooting. Styles included are flipper, launcher, biscuit, and drop away.

**Cable** - Connects the two eccentrics together turning them over simultaneously when drawing  
**Cable guard and slide** - Keeps the cables from wearing against each other and away from the flight of the arrow.

**Eccentric wheels** - Found on the end of each limb. Stores most of the energy in a compound bow. Styles of eccentrics include wheel, cam, single cam, and cam and a half.

**Grip** - The portion of the bow that you hold with your bow hand.

**Kisser button** - Located on the string to be lined up with the corner of your mouth while at full draw. Helps to give you a consistent anchor point.

**Riser** - The center part of the bow which the limbs and all the accessories are attached.

**Nock locator** - Used to position the arrow on the serving square to the arrow rest.

**Lower limb** - The limb on the bottom half of the bow.

**Limb bolts** - Holds the limbs in place on the riser. Used to adjust the draw weight of the bow.

**Peep sight** - Located on the string to be lined up with your dominant eye when bow is at full draw. Acts as a rear sight.

**Quiver** - Holds the extra arrows. Should completely cover your broadheads.

**Sight** - Used for aiming the bow. Attached to the riser.

**Stabilizer** - Acts as a counter balance.

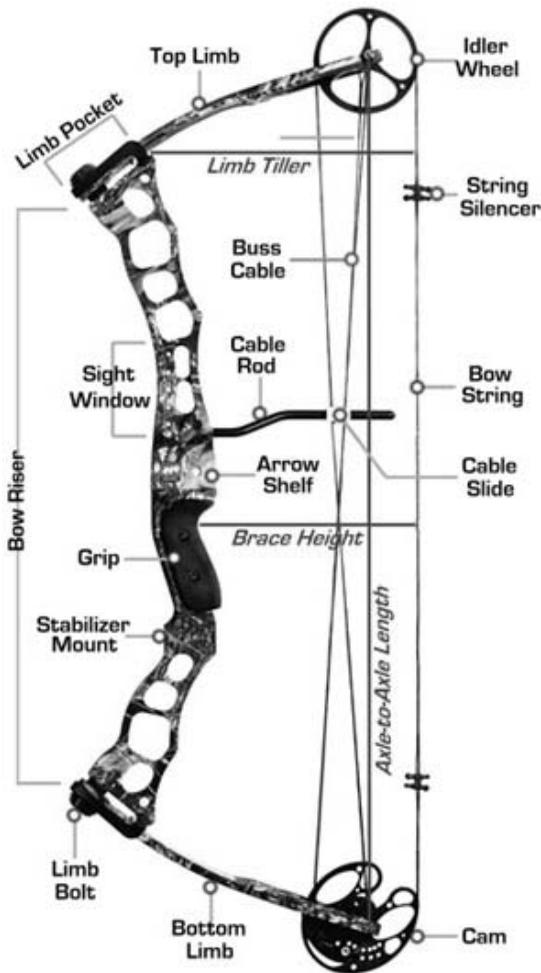
**String** - The string you pull back while drawing.

**String Silencers** - Located on the string to quiet the bow by dampening the vibration.

**Serving** - The portion of the string in which the arrow is nocked.

**Upper limb** - The limb on the top half of the bow.

**Window** - The portion of the riser that you look through while shooting.



## Arrows

Arrows can be made out of wood, fiberglass, aluminum or carbon. The vast majority of arrows used for hunting are made out of either aluminum or carbon. Carbon arrows, which are lighter, may fly flatter and quicker, will have less kinetic energy or penetration than a heavier aluminum arrow. Personal preference, budget and type of bow will dictate what type of arrow you will buy. Regardless of what type of arrow you choose, you need to make sure it matches your bow. To determine what size of arrow will work best, one should go to your local archery pro shop to have your draw length and draw weight measured. With this information the pro-staff can look at an arrow sizing chart to determine what spine, or stiffness, your arrow should have. Aluminum arrows are measured with a four digit numbering system. The first two numbers give you the arrow's diameter measured in 64ths of an inch. The second two numbers give you the arrow's wall thickness measured in 1000ths of an inch. Carbon arrows have a numbering system unique to each individual manufacturer. It's important that your arrow matches your bow. An under-spined arrow could be dangerous to shoot, while an over-spined arrow may not shoot precisely.

## Parts of an arrow

**Shaft** - The long slender part of the arrow usually made out of aluminum, carbon or carbon composite for compound shooters. Traditional archers usually shoot wooden shafts while those bowfishing may use fiberglass shafts.

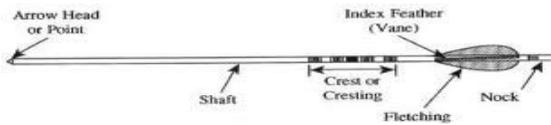
**Crest** - The portion of the shaft where the arrow's information is written

**Nock** - The notch into which the bow string is placed. Usually made out of plastic.

**Veins / fletching** - Used to stabilize the arrow in flight. Usually made out of feathers or plastic. Can be oriented straight or with a twist (also called helical).

**Index vein** - Vein of a different color that is used to help determine the proper orientation of the arrow while nocking.

**Point** - The end of the arrow that has an arrow head that matches the type of shooting you will be doing.



## Types of points

**Field** - Used mostly for target practice and some small game.



**Fish** - Used for bowfishing usually with a fiberglass arrow. A fishing license is required. See the NJ Division of Fish and Wildlife Fishing Digest for more information on what species can be shot.



**Blunt** - Used for small game. Dispatches the animal by impact.



**Judo** - Used for small game and target practice.



**Fixed broadhead** - Uses razor sharp blades that are permanently fixed in place to dispatch an animal by causing massive hemorrhage. Has greater penetration than most mechanical broadheads.



**Mechanical broadhead** - Shoots with blades closed and opens on impact. Most styles have less penetration than fixed blades. There is no guarantee that they will shoot the same as a field point. You still need to practice with them before the season.



**Mechanical releases** - Mechanical releases help give you a more consistent release when used properly. Most modern compound bows are designed to be shot with a release. Be sure to keep your finger behind the trigger while drawing the bow.



## Before you shoot

It's important that before you start shooting that you check your equipment to make sure it is safe to shoot. The bow should be checked for cracks or splinters on the limbs, worn strings and cables, c-clips on the axles for the eccentric wheels, and any other loose parts. Listen for any rattle when tapping the bow with your hand. Your release should be checked for any worn or loose parts with strap and mechanical part of the release. Arrows should be checked for straightness, cracks, splinters or dents. The points should be screwed on tight. Nocks should also be checked for hairline cracks.

## NASP

New Jersey is part of the National Archery in the Schools Program (NASP) which teaches International Style Archery skills to all kids in physical education classes at the participating schools. This style of teaching has been proven to work across the country fostering an interest in the life long skills of archery. Part of the curriculum teaches the proper way of shooting a bow with the "11 steps to archery success". To get more information on NASP visit [www.NASPschools.org](http://www.NASPschools.org). To get your school involved with NASP in New Jersey go to [www.njfishandwildlife.com](http://www.njfishandwildlife.com).



### 1. Stance

Feet should be shoulder width apart with toes in line at a right angle to the target. This is considered a neutral stance. To allow more string clearance from your chest and arm, you can open your stance by moving your lead foot back half a step.



### 2. Nock Arrow

The arrow should be taken out of the quiver with the point aimed in a safe direction down range. The nock of the arrow should be placed on the serving below the nock locator. An audible click should be heard when the nock clicks in place.



### 3. Drawing Hand Set

Your release should be clipped in place on a string loop or on the string directly. If shooting fingers, your pointer, middle and ring fingers, should be hooked on the bow string along the first groove of your fingers. This groove is called the archer's groove. To prevent pinching the arrow, keep all three fingers below the arrow.



### 4. Bow Hand Set

Center the bow's grip under the lifeline of the relaxed bow hand.



## 5. Pre-Draw



Hinge the bow arm and drawing arm up to eye level

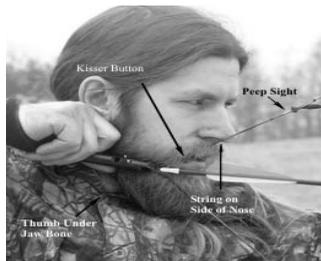
## 6. Draw



Pull the string back to the side of your face. Keep your elbow up to use your back muscles.

## 7. Anchor

Draw the bow string back to same reference point on your face every time. This archer is using four reference points to guarantee a consistent anchor point.



## 8. Aim

While keeping the bow level, align the sight pin with the target. Your eyes should be focusing on the sight pin. If you are shooting instinctually (without



sites), concentrate on the center of the target with both eyes open while aligning the string, riser, arrow rest, and arrow point with the target.

## 9. Shot Set-Up



Begin a slight rearward movement of the drawing shoulder, arm, and elbow. Initiate the release anytime during this movement.

## 10. Release



The release is initiated with the rearward movement of your drawing arm. Paint the side of your face with your drawing hand, while releasing your fingers or squeezing the trigger.

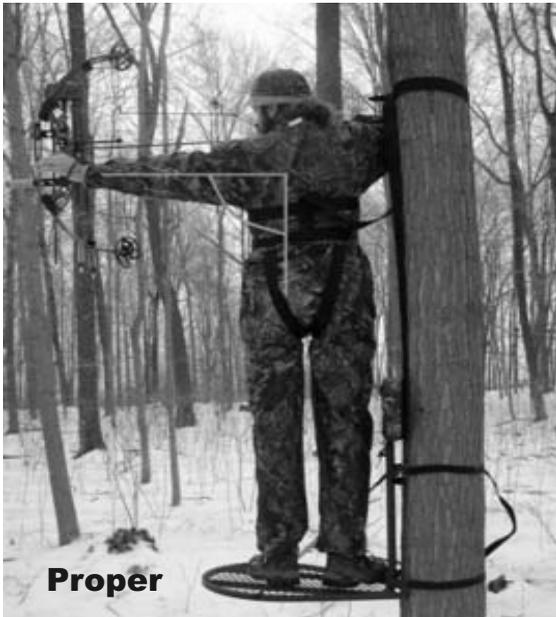
## 11. Follow Through



The drawing thumb should be near your shoulder while your elbow should hinge downward. The bow arm moves slightly forward. Reflect on your shot.

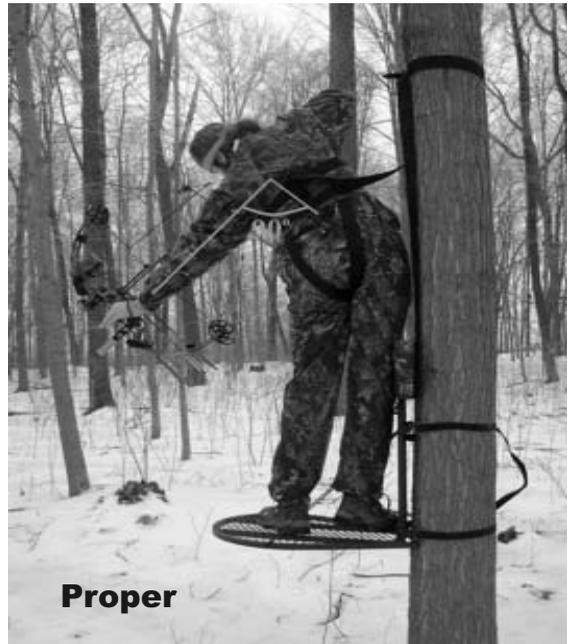
## Shooting From a Tree Stand

The majority of bow hunters in New Jersey prefer to shoot from a tree stand. If you plan on hunting from a tree stand, you need to practice from an elevated stand. In order to ensure that you are successful, you need to pay attention to your form. When shooting at a level target, your bow arm is at a right angle to your upper body.



This form gives you your set draw length. Now when you are shooting at a downward angle from a tree stand, you need to maintain this right angle. This is done by bending at the waist after coming to full draw. If you remain perfectly upright, and only move your bow arm downward, you have changed the angle between your arm and upper body, in turn shortening your draw length. This will definitely affect your shot. By bending at the waist, you can use the same pin you would normally use while on the ground. The steeper

the angle the more important it is to have proper shooting form.



## Crossbows

As a new crossbow hunter your first job will be to read and understand the instructions supplied by the manufacturer with your crossbow. These instructions are specific to the type of crossbow you will be shooting. Failure to read and understand these instructions can result in personal injury to yourself or others and also damage to your equipment.

Before loading your crossbow always be sure to check your equipment for damage to the string, bow limbs and stock. Never attempt to load your crossbow if any type of defect is found before a certified service dealer corrects the problem.

Crossbows can be cocked either manually using your hands or with the aid of a cocking device supplied by the manufacturer. An arrow should not be nocked onto the string until you are into your stand and ready to shoot.



You should never attempt to still hunt with a crossbow that has an arrow nocked. Doing so could result in serious injury to yourself if you should happen to fall onto your equipment.

While hunting from a treestand with a crossbow remember to always cock the crossbow while on the ground. Once you are safely into your treestand you must use a haul line to bring your crossbow into the tree. Never attempt to cock your crossbow from your treestand and never attempt to carry your

crossbow with you as you climb the tree. Once you and your crossbow are safely into the tree check your equipment for damage and be sure that the safety is on before you nock an arrow. To return safely to the ground uncock the arrow and again use a haul line to lower the cocked crossbow to the ground.

While shooting your crossbow always remember to keep all of your fingers below the rail and the path of the string. Failing to do this will result in serious injury to your hand.



Before shooting always check your surroundings for anything that may come in contact with the limbs of your crossbow. Anything coming in contact with the limbs while shooting will cause an errant shot while also possibly causing damage to the limbs of the crossbow or yourself.

At the end of the day to safely unload your crossbow it must be shot. In New Jersey you can carry one arrow with a point different than a broadhead used to unload your crossbow. You should shoot this arrow into soft ground or carry a small target. Be sure that whenever you shoot your crossbow there is always an arrow nocked. Shooting a crossbow without an arrow is called a dry fire and could cause damage to your equipment or yourself. Do not attempt to use the manual cocking device or your hands to uncock the crossbow. Remember to always transport your crossbow uncocked while in a vehicle!

## Archery Limitations

Modern compound bows and crossbows casting arrows at over 315 feet per second are tremendously more efficient than bows of the past. However, don't be fooled into thinking technology has replaced the need to practice or the need to limit your shots. Modern archery is still a close range sport that requires plenty of practice. Regardless on how quick your bow is, your bow is still no where near quick enough to be able to shoot quicker than a deer's reaction time. A deer's reaction time is over 600 feet per second. Therefore, the deer must be relaxed, feeding or looking the other way. If the deer is looking at you, even if you are at full draw, you will never be able to successfully make the shot. Even a relaxed deer will want to react to the sound of your bow. In order for your arrow to hit the deer before the deer has time to move, the deer needs to be close. Anything past 16 to 18 yards, allows the relaxed deer will have time to react. Knowing this, you must keep all your shots within that range. It is much more important to have a quiet bow than a quick bow. Since most modern bows shoot on the top sight pin out to 20 yards or more, this is the only pin you need while in the woods.

## Field Requirements For the Test

On the day of your exam, you must show up on time with your completed workbook and your own equipment (either a conventional bow or crossbow). The equipment you take the shooting test with must meet the minimum hunting draw weight requirements in NJ. This information can be found in your Fish and Wildlife Digest. You must also bring 5 matched arrows with field points (**NO** broadheads). You

will be required to shoot at least three out of five arrows into the vital zone of a 3-D deer target at a distance of between 15 and 20 yards.

## Personal Requirements to Hunt

Before you step foot into the woods, your personal shooting requirement should be five out of five arrows in the vital zone of a deer at 20 yards. If you are hunting from a treestand, you need to be able to complete this requirement by practicing from an elevated stand. Be sure to practice while wearing your hunting clothes and safety harness. Before hunting, you also need to be sure that your broadheads shoot the same as your field points. If your bow is perfectly tuned, the broadheads should shoot the same. You don't know this until you practice. You may need to try a few different broadheads before you find one that shoots properly with your equipment. Be sure that before you go in the field that you have replaced or re-sharpened the blades on your broadheads after practicing with them. Once you can hit the vital area of the target 100 percent of the time with your broadheads while wearing your hunting gear and from an elevated stand (if you will be hunting from an elevated stand) you are ready to start hunting. In many areas of New Jersey, archery season lasts more than five months.

**It is just as important to practice during the season as it is to practice before the season.**