POWDWER HORN ARCHERY

Learning Objectives:

Demonstrate safe handling and proficiency. As a result of this session the participants should be able to:

Explain the three primary shooting safety rules
Explain the range commands
Explain difference in Recurve and compound bow
Explain safe sports shooting range designs

Certification

Certification is not required, but is highly recommended. Certification is NAA (National Archery Association) Level I Instructor training or BSA Camp School certification.

All Things Pointy

One thing is fairly common among all kids, teens and adults . . .a fascination with pointy things. There are lots of fun related sports of Archery. Atlatls, blow darts, throwing knives and throwing hawks can be fun and challenging, but there are good ways to experience these sports and bad ways. With the proper equipment and research they can be safe. Much of the information about ranges pertains to these sports. With a little research you can learn about these things and bring a little extra to your program.

There are some web references at the end of this document that will start you off.

Final Note:

There is legislation pending that will shut down the use of firearms on Federal lands. Before you go out to your favorite shooting spot outside of the designated ranges in the state check with the BLM or contact you local Archery shops for an update on the latest rules. The Arizona Fish and Game is also a good resource.

Course Instructor:

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Dedicated to Arizona Scouting. Mostly under construction, but you may find valuable information for your unit here. Most of this is stuff I have personally developed over time for training and other purposes. You will find this information, a few Hike journals (maps and details), and a few other interesting items. Please feel free to send me things that you might want to share.

ARCHERY SAFETY RULES

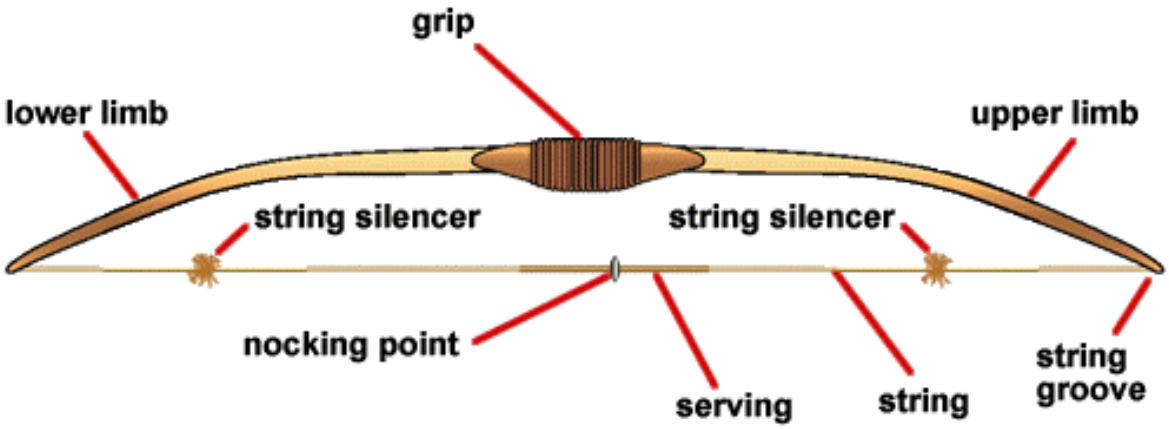
Golden Rule of Firearm Safety:
A BOW AND ARROW ARE NEVER SAFE

SAFE DIRECTION
OPEN ACTION (NO ARROWS UNTIL SHOOTING TIME)
FINGER OFF THE TRIGGER
(FINGERS OFF THE STRING UNTIL READY TO SHOOT)

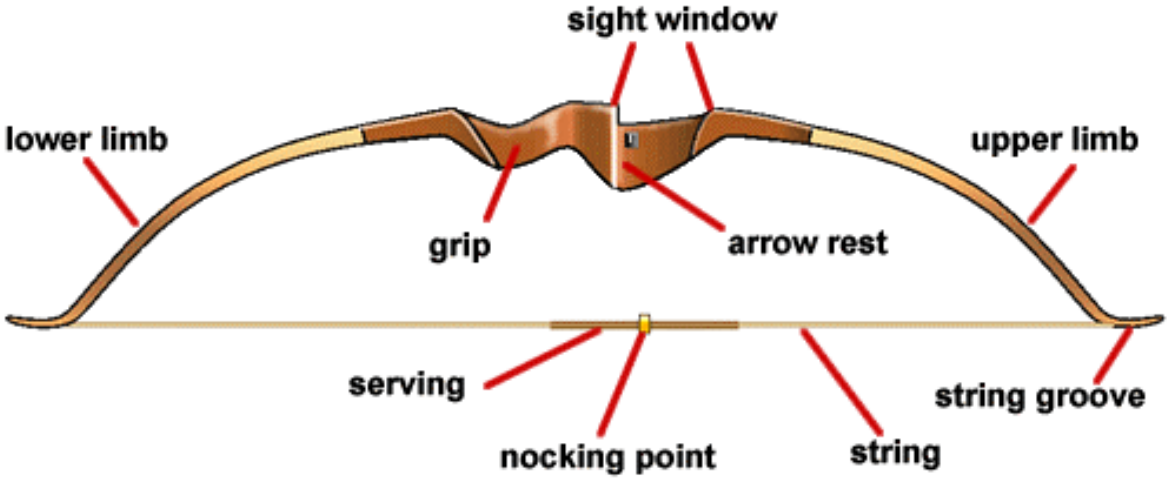
1. ***Walk***, never run on the Archery Range.
2. Always keep your arrows ***pointed at your target***.
3. Make sure the Shooting ***Area and Range are clear***.
4. Never shoot at a target that is too thin.
5. Always ***use proper safety*** equipment.
6. Use arrows of the proper length for you.
7. Inspect your equipment before shooting.
8. Never “Dry Fire” a bow. Always have an arrow on the string.
9. Wait to retrieve arrows until the “All Clear” is given.
10. Lean your bow against the target to warn others that you are behind the target.
11. ***Listen and respond to all Rangemaster instructions***.
12. Never shoot an arrow straight up into the air.

Compound Bows versus Traditional or Recurve Bows

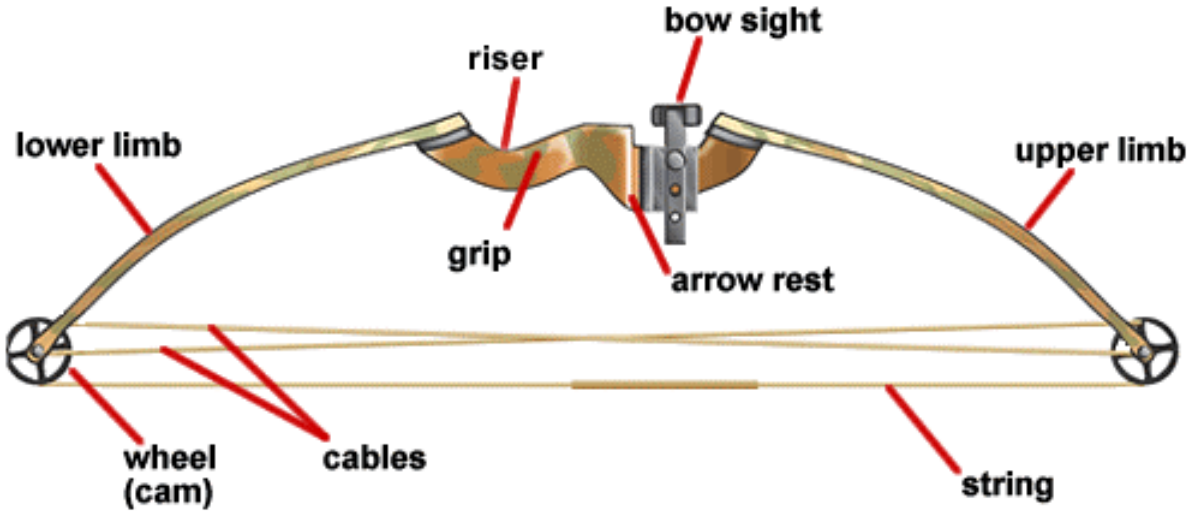
Long Bow



Recurve Bow



Compound Bow



Differences

The latest innovation in Archery is the Compound bow. It is more expensive than traditional or Recurve bow, but the compound provides significant advantages for the hunter and target archery. Target archery is only recently building target competitions for these bow. The Olympics is still Recurve based, but is looking to expand to both traditional and compound tournaments.

Compound Bows

As the compound bow is drawn, the draw weight increases to a peak and then "lets off". The let-off is usually between 40% and 60% of the peak weight, but some concept bows have a let-off of 99%. This enables the archer to hold the bow fully drawn and take more time to aim. This let-off enables the archer to accurately shoot a bow with a much higher peak draw weight than they could manage with a conventional longbow. There are very few people alive today who could shoot accurately with a single string using the draw weights of the longbows that range from 30 to 100 lbs. In medieval times these weights were 150 to 200 lbs. to be able to be used at battlefield distances.

The bow is resilient to temperature and humidity changes giving the bow superior accuracy, velocity, and distance in comparison to bows made out of natural materials such as the classic longbow.

The pulley system usually will include some rubber-covered blocks that act as draw-stops. This provides a solid "wall" that the archer can draw against. These draw stops can be adjusted to suit the archer's natural draw-length. This helps the archer achieve a consistent anchor point and a consistent amount of force imparted to the arrow on every shot, further increasing accuracy.

Recurves

Adding a slight recurve at both ends of the traditional bows added stability and a way to lighten the poundage. This could be done with the traditional woods, but now days fiberglass and other plastic and even carbon combinations are making stronger and better bows. They can be customized with fancy multi sights, stabilizer bars and sophisticated rests. These items allow Olympic archers to put all their arrows into the 10 ring every time.

Traditional Bows

Traditional bows are made mostly of wood or wood laminates. They are essentially a straight “stick” and string though there are lots of variations. Due to the constraints of the wood, it is very difficult to make a bow lighter than 40 lbs. Most are hand made and can be quite ornate. Many archers in this category prefer hand made arrows as well and old style leather arm guards.

Ranges

A typical range has three areas: Waiting or Non Shooter area, Shooter Area, and Target Area. A typical set up would be a line of Targets, a rope or Line called the shooting line where the Shooters will line up at for shooting, and a rope or line about 10 feet or more behind the

shooting line for bystanders, non shooters and for shooters who have finished shooting their round to return to when done.

When setting up the range a very important consideration is what is behind the targets and to the left and right of the area between the Target line and the Shooting line. These are the areas where errant arrows will go. An arrow can fly over 200 yards with penetrating power depending upon the skill of the Archer and their equipment. Make sure that during shooting no one is allowed in these areas. A 100 yard perimeter is preferred, bigger if higher powered compound bows are being used or if you plan to actually shoot at such long distances.

It is best to have a barrier behind the targets. This will help to keep arrows from getting lost. Even if a 10 foot high wall is erected behind targets don't let this be your perimeter. Errant arrows, especially with kids will easily fly over the way. The rear perimeter still needs to be maintained a longer than you feel arrows will be able to go if shot purposely over the barrier. A hill side is best.

If possible use rope or caution tape if possible to outline your perimeter.

Range procedures and commands

Everyone should begin by staying off the range and behind the non firing line. Safety, Range Rules, and Shooting Instruction come first.

Only shooters are allowed to pass the non shooting line and go up to the Firing line when it is time to begin shooting. Remind shooters that arrows are not to be loaded or fired until the Rangemaster gives the loading and firing command.

Sample Commands:

Whistle	Verbal
Two Blasts- "Get Bows"	Ready on the Line
One Blast- "Shoot"	Load and Fire When Ready
Three Blasts- "Go get Arrows"	All Clear
Five or more Blasts- "STOP SHOOTING"	STOP

Your commands can vary thought the Whistle commands are common to NAA rules.

Sequence of firing the shot

1. Ensure the correct stance and body position
2. Load the Arrow correctly
3. Draw the Arrow back and come to the correct anchor position
4. Aim
5. Release

This is basic and there are a number of modifications, adjustments and refinements that you can learn about by reading various books on shooting and subscribing to Archery related magazines.

Some detail is given below in the next few sections

Shooting positions

Target Archery uses only the standing position. Hunters often use other positions, but the size of the bow generally makes other positions impossible without modifying the bow position. Modifying the bow position for vertical to some accommodating angle has significant affects on shooting characteristics and arrow flight. These are beyond a course like this.

Scouts often like to shoot “Robin Hood” style with the bow horizontal to the ground. First, remind them that what they see in the movies is set up and that the results they see are also set up and often physically impossible from a reality point of view. Also the arrow will jump up from this position and control of the bow is far more difficult.

See the next section on **Firing the First Shot** for setting up the standard standing shooting position.

Firing the First Shot

It is best to ensure that all your shooters start with the correct stance and arrow position. Make that first shot in steps.

Stance

Ensure the correct stance by having the shooters take their position on the line and position their front foot up against the firing line and parallel to the line. Some Rangemasters prefer to have the shooters straddle the line, but I have them up against it so they are all in an even line and they know how to position their front foot. Scouts like to point their toes at the target so positioning against the line and parallel to it gets the correct foot position and tends to force the rest of their body into proper alignment.

The legs are shoulder width apart and the body should be positioned at right angles to the firing line. The back foot is parallel to the front foot It is sometimes helpful to draw a line at a right angle to the firing line and have the scouts position their toes on this line.

Emphasize at this point that shoulders and hips are in line with the target. Also emphasize that once this stance is set they should not move their feet until all arrow are shot. The feet are one anchor point of the Aiming system. A simple movement of the feet forward or backwards can throw off an aiming point by several inches at the target and be the difference between a 5 and a 10 point shot. Access to arrows should be set up so the scout should not need to step forward or backward to get their next arrow.

Arrow Positioning

After the stance is set then the scout can pick up an arrow and position it on the bow. Bows that are made for either left or right handed archers help with positioning. The arrow should be on the same side of the bow as the scout. The Knock (clip for the string) should be placed on the string under the knock point (most often a metal ball fixed to the string). There are a number of Instructors that prefer to place the Arrow on top. The purpose of the knock point is to make sure that the arrow won’t ride up on the string. While today’s arrows clip on to the string, in the old days the notches cut in the arrows varied a lot and did not fit on the strings tightly and would slip up and down. Before the draw the arrow weight is in front of the bow and the lever action forces the other end up, hence the knocking below to prevent this. At full draw

the reverse is true but at that point you have a finger below the arrow and other forces at work. The other reason for the knocking point is to show where the arrow would be level when knocked and on the arrow rest of the bow.

The arrow should be resting on a rest, a plastic or metal device that is slightly above the grip of the bow. Traditional bows and inexpensive bows will not have rests and will simply lie on the top of the grip or on traditional bows on the top finger of the hand.

Note many of the scouts will try and hold the arrow in place with a finger from the grip hand, Discourage this as they can end up with a feather in that finger if it not moved away in time. Feathers are like fish hooks they don't come out easily.

Arrows generally come with three feathers, one of which is different then the rest. This feather should be facing the scout. It will be parallel to the ground while the other feathers appear at angles. If no different (or Index) feather is present then look for this parallel positioning of the feather that faces the scout.

The arrow should stay on the bow and not fall off if it is properly knocked. The scout should not half to hold the arrow in any way.

<u>The Draw</u>

The Bow hand and arm should be fully extended with the elbow essentially locked. In this position the draw pull is against bone and muscle is not used to keep the bow extended. In some cases (mostly women) the locked elbow may push the arm in the path of the string when released causing the scout some pain. In this case an arm guard is suggested. If the position and stance are correct there is no need for an arm guard (See the anchor point for more on this).

The scout will draw the string with the three fingers of the scout sign. One finger is placed above the arrow and the other two below. The scout should not grip the arrow, but leave a little spacing for the arrow. Gripping the arrow will not let it "ride out" the slight twisting of the string during the draw and the arrow tends to fall off the rest. The string should rest in the on the tips of the fingers or in the first knuckle grove. The grip of the string should look like a scout sign; it should not look like a fist.

The scout should now pull the string back with his elbow parallel or slightly above shoulder height. I liken this to "pulling back with the elbow". The draw should come all the way back to the scouts face and he should touch the face at his anchor point (see below). The bow arm should be fully extended.

<u>The Anchor Point</u>

Aiming systems use a three point system. If two of these points, the feet and the anchor point, are kept the same then the only thing we need to adjust is the aiming point to score high points consistently.

The Scout Archery Merit Badge book has the scout touch his chin. Olympic Archers will draw back until their string touches their nose (this is a whole other level). I suggest having the scouts have the touch the corner of their mouth (or smile) with the knuckle of their thumb. This provides a consistent anchor point. They should not stretch their thumb out to touch this spot.

The thumb should be close to the hand like a scout sign. They should feel their thumb pressing in at this point and not just barely touching it. This way quivering of the hand trying to hold the bow string back is minimized.

Aiming

There are a lot of parts to this and so many theories and possibilities. Breathing techniques, sights, release techniques, and many other things can affect the flight of an arrow. If your stance is good and the anchor point consistent then you can be very with out all of this, though if you want to be competitive learn more on your own.

Bare Bow

The simplest aiming concept is to use the tip of the arrow. The concept is really the same for any type of sight except that with sights you can adjust the sight versus adjusting the aiming point. For bare bow (no sight) shooting the shooter sees the tip of the arrow and sets it somewhere on the target. The shooter should be told not to look down the arrow, but just at the tip of the arrow.

Start by having the shooter place the tip of the arrow in the 10 ring and shoot all his first round using this aiming spot. The shooter should be told not to be concerned where the arrows are going but concentrate on aiming on the middle of the 10 ring. If the shooter is concentrating on his aiming spot properly then all of the arrows will be grouped somewhere. Where they are grouped will tell you where to move the aiming spot. How close the grouping is will tell you how well he is concentrating and centering on the middle of the aiming spot (more on this later). If you have no real grouping, then the shooter does not fully understand the concept of concentrating on the middle of the aiming spot and releasing only when the tip of the arrow has settled on this spot.

If the arrows are grouped 6 inches down and 4 inches to the right then move the aiming spot up 6 inches and left 4 inches. Translated: the shooter moves his bow hand so that the tip of the arrow is aiming at a spot on the target that is up 6 inches and left 4 inches from the center of the 10 ring.

Getting to the Aiming Spot

Many shooters have a problem with the aiming spot. The 10 ring is 2 inches across and where is the middle exactly. Releasing one arrow 1/4 inch on the right and then next ¼ inch on the left translates to several inches at the target due to the angles involved. Generally I work on the grouping first. Once there is a grouping even though the group fits into an 18 inch circle, if they are all in the same quadrant then we are at least seeing an aiming point. When you move the aiming spot try drawing a small spot for the new aiming spot. I use a piece of tape, but still draw a spot for clarity. This technique draws their aim into the spot and the grouping should improve and should be closer to the higher scoring rings. It can sometimes take a couple of adjustments to get the group centered on the 10 ring (though not necessarily in the 10 ring.

Several things affect aiming. If the arrows are of different types, or lengths or event different paint the grouping will be wider. It is best to have scouts pick similar arrows.

If the bow is too big (to large a poundage) then the shooter will struggle with the bow and not settle very well on the aiming spot. While bigger poundage means a straighter arrow, if it can't

be controlled then this factor is worthless. The shooter needs to be able to draw the bow to full length to the anchor point) and stand with comfortably for several seconds to let the aim settle.

Tight groups will depend somewhat on the equipment, but Maturity and level of concentration are really the keys. Even modest equipment like inexpensive fiberglass long bows and wooden arrows can achieve the scores required for the Ranger award. Better equipment and sights will make it easier and help the middle ground shooters that need something like a small peep or point sight to get their concentration levels up. Young scouts usually lack the concentration and maturity and the best equipment may be of no help.

The aiming spot is a critical element. I start with the shooters concentrating on the 10 spot. As each shooter gets a decent grouping I move the aiming spot. For those with poor groupings I work with them to see that "spot" and release only when settled there. I ask them where are you aiming and have them point out the spot on the target. They often draw a fairly larger circle with their finger and say around here. I then tell them they need to be able to put their finger on a spot on the target. So I hone them in on a "spot" once they get this a grouping will appear.

To score high enough to get the scores for the Ranger award the shooters need to get their grouping centered around the 10 ring and should only be about 1 foot in diameter.

The Release

There are lots of theories about releases. I teach a release of the fingers only. The hand should remain firmly against the face. Any movement of the hand away from the face causes the path of the arrow to change. The scout should be like a statue at the end of the shot (called follow through).

Is there more to shooting then this?

You bet, but this method will bring you consistent success with out going into more detail than your scouts can handle. They want to get shooting not sit for lecture. You can help them improve over time and encourage them to study further if they have interest in competitive archery or hunting.

Web Links

Archery

National Archery Association One Olympic Plaza Colorado Springs, CO 80909 719-578-1576 Web Site: www.wheretoshoot.org	NFAA Headquarters 31407 Outer I-10 Redlands, California 92373 http://www.nfaa-archery.org/	Arizona State Archery Association http://www.azarchery.com/ Arizona Fish and Game http://www.azgfd.gov/

Atlatls

This has the easiest to use Atlatls: http://www.atlatls-n-more.com	This is an excellent site for darts and Atlatls. Great people. http://www.thunderbirdatlatl.com

Throwing Knives and Hawks

http://www.westernstageprops.com

Blow Darts

http://www.aborigine-blowguns.com

http://www.wholesalegoods.net/

Arizona Ranges

This lists all the Archery and Rifle ranges around the state
http://www.tucsonshooting.com/Areas_Phoenix.php

Indoor	Archery Headquarters 6401 W Chandler Blvd # A Chandler, AZ 85226 (480) 961-3100 http://www.archeryhq.com/
Outdoor	Ben Avery Shooting range http://www.azgfd.gov/outdoor_recreation/ben_avery.shtml Papago Park http://groups.msn.com/PapagoFITAArchers
Field	USERY MTN ARCHERY RANGE 3939 N. Usery Pass Rd., Mesa, AZ 85207 480-984-0032 Ben Avery Shooting range http://www.azgfd.gov/outdoor_recreation