

The background features a large, semi-transparent watermark of the BSA logo. The logo consists of a central shield with a blue and white striped field and a blue top section containing a white cross. Above the shield is a blue archery bow with a white arrow pointing upwards. The shield is flanked by two blue stars. The entire logo is set against a light blue background with a subtle sunburst pattern.

BSA MOBILE ARCHERY RANGE SAFETY OFFICER TRAINING

**Includes information From BSA
National Shooting Sports Manual *(2015 Edition)***



Purpose

This is a Northern Star Council Innovation Project to showcase some of the unique fun and adventure our program offers through a safe, colorful and commercially designed mobile archery range.

It's purpose is to utilize the visibility opportunities of community festivals, fairs and events to enhance Scouting's image, reputation and profile, by giving participants a taste of Scouting activity.



Course Outline

- To use this resource safely, this presentation contains the minimum training material in order to be the BSA Archery Safety Officer to run the BSA Mobile Archery Range.
- One BSA Archery Safety Office must be present at all times the range is in operation.
- Portions of this training are from the BSA *National Shooting Sports Manual*, but this training **IS NOT** the full BSA RangeMaster Training.

Special Thanks goes out to the Scott Mehl and Ten Ring for this manual.



Course Outline

Section I

A. Safety Guidelines

1. Safety Instructions

B. Equipment

1. Review range setup, takedown, packing, bows and arrows.

2. Review how to maintain, store, and care for equipment.

C. Range Operation Rules

Section II

A. Range Layout

B. Range Operation Rules



Course Outline (Cont.)

Section III

A. Training Participants -Teaching Tips

B. Archery Shooting Basics

- 1. Eye Dominance**
- 2. Stance**
- 3. Nock the Arrow**
- 4. Establish the Bow Hold**
- 5. Draw**
- 6. Aim**
- 7. Anchor**
- 8. Release**



SECTION I

Overview



- Archery is a colorful, interesting and one of Scouting's most popular activities.
- Beginners can gain immediate satisfaction, yet also a continuous challenge as they develop into an archer.
- It provides good physical exercise and develops powers of concentration and coordination.

Safety Guidelines



- Check all equipment before use to be sure bows, bowstrings, and arrows are in safe condition.
- All spectators and archers waiting to shoot must remain behind the shooting line at all times.
- A bow, like a gun, must never be pointed at a person.
- Minimum Shooting Distance is 15 Feet.
- Always wear Safety Glasses and an arm guard.

Safety Guidelines



- **Never draw a bow if anyone is in front of the shooting line. Stand behind the shooting line.**
- **Arrows should be nocked only on the shooting line and pointed only in the direction of the target.**
- **Stop shooting immediately on signal from the Range Staff or if anyone crosses in front of or behind the target.**
- **Never shoot an arrow up into the air.**
- **Only release an arrow when you can see its full clear path to the target.**

Safety Guidelines



- Shoot only at the target in front of you.
- Archers must be behind the shooting line, using the marks for feet placement on the rugs.
- Put aside and report any cracked or fractured arrows when returning the range.
- Draw a bowstring only with a nocked arrow of proper length. Never draw and release the bow without an arrow.

Equipment Setup



1 Area Preparation

If operating outdoors, check ground for a flat, level surface void of any rocks, sticks, pine cones, etc. Look for anything that may puncture the bottom of the Hoverball® Archery Target. Also, check height clearance for trees, power lines, or overhead obstructions. Never operate the Hoverball® Archery Target on a rough surface without a pad or tarp beneath.

Use Gray Tarp provided under Range



2 Unpack the Bag

Unzip the bag.

Remove the rolled Hoverball® Archery Target. Remove straps from the Hoverball®.

Unroll the Hoverball® in the direction you wish it to face.

test



3 Attach the Blower

On the back left corner of the Hoverball® find the air portal tube. Attach the blower to the air portal tube.

Place port end over the blower nozzle and check to be sure that it is not twisted.

Pull the black strap through clip teeth and tighten so it is snug around blower nozzle.



4 Close Front Air Vent

On the front left of the Hoverball®, there is an air vent on the bottom. Lift up the front left corner to see the underside of the Hoverball® and close the vent flap so the Velcro holds the flap shut. It's easiest to close this flap before inflating the Hoverball®.

Equipment Setup



5 Plug in the Blower and Turn On

Plug in the blower to the closest power source. If using an extension cord, use a 14-gauge or heavier cord that extends no more than 100 feet from the Hoverball® Archery Target to the power source. If using a power generator, the blower is 115v motor drawing 5.5 AMPs. Turn on the blower.



6 Ensure Even Air Distribution

Walk around the Hoverball® and pull up on the corners to help ensure even air flow and upright inflation. Make sure that the top of the Hoverball® remains horizontal so it inflates upright.



7 Close Rear Air Vent

On the back of the Hoverball®, find the air vent. Push the internal flap inside the Hoverball® and zip the vent closed. Close the external flap so the Velcro holds it closed.



8 Secure the Hoverball®

If outdoors, secure the Hoverball® Archery Target by staking the unit at all four (4) corners via the attached D-rings. Drive stakes half way at a 45-degree angle away from the inflatable. On hard ground you may have to use a clawhammer to pound the stakes into the ground.

There are also D-rings on the upper corners if you want to tie ropes on the Hoverball® for windy situations. The back of the unit must be facing toward the wind. Take the ropes and anchor them toward the wind to keep the Hoverball® upright.

If conditions are too windy to keep course safely in place, discontinue use and take it down.

Equipment Setup



7 Float Balls above Cones
Hold a ball 4" to 6" directly above an air vent cone. The air flow should catch the ball so that it "hovers." Release the ball. Repeat for each cone. The balls should hover 4" to 6" above the cones.

If windy, be sure place the Hoverball® unit so the backdrop faces the breeze. The backdrop should shield the target area from the wind. Optional side panels are also available to cut down on wind in the target area.



A twisted air portal will severely restrict air flow.



Make sure the air portal is straight and clear of twists or kinks.



Make sure the bottom and back air vents are closed.

TROUBLESHOOTING

Balls won't stay afloat

The balls should hover 4" to 6" above the cones. If they are falling frequently or barely above the cone, please check the following:

- Make sure the Hoverball® Archery Target is on level ground.
- Make sure the portal air input tube that connects to the blower is not twisted.
- Make sure the portal air tube opening is tightly attached to the blower nozzle. Air should not be escaping from the opening.
- Inspect the back air vent to be sure it is zipped closed and the flap is closed over the zipper.
- Inspect the bottom front air vent to be sure the flap is closed.
- If it is windy, make sure the back of the Hoverball® is facing into the wind. The backdrop should shield the balls from the wind.
- If it is windy, make sure the Hoverball® is anchored to the ground so it stays upright and doesn't move in the wind.

Targets are printed on the backdrop so users will always have something to shoot at whether the balls are floating or not!

Equipment Setup



1 Begin by attaching the upper limb (with logo) to the top of the riser.



2 Firmly slide the tongue end of the limb into the riser. The signature on the limb should be facing the front of the riser.



3 Repeat with bottom limb (serial number decal facing back of riser).



4 Lay the string so that the short part of the finger protector is toward the top of the bow.



5 Place the large top loop of the string loosely around the top limb.



6 Slide the top loop down to create slack in the string.



7 Place the bottom loop of the string inside the notch of the bottom limb tip. Make sure the string is centered on the limb.



8 With the bow facing up, place the bottom limb under your thigh (above and behind your knee).



9 Grip the riser and pull it toward you while pushing the string loop away from you until it is in the notch of the top limb tip.



10 The string should be centered on back of the limbs. Your bow is now ready to shoot.

*Always unstring your bow when not in use.
To unstring the bow, reverse the above process.*



Visit SafeArchery.com for video tutorials and more!

Equipment Takedown



Deflate the Hoverball® Archery Target



1
All guests should be clear of Hoverball® Archery Target. Remove all loose items left on the Hoverball® Archery Target such as arrows, balls, etc.



2
If applicable, remove stakes and/or weights securing the unit. You may need a clawhammer to remove stakes from hard ground. Also remove side panels.



3
Open the flap on the back vent, unzip and allow air to escape. Open the flap on the bottom vent and allow air to escape.



4
Turn off and unplug the blower. Disconnect the blower from the inflatable.



5
Allow the inflatable to "collapse" on top of itself. Push the corners into the target area so the top of the Hoverball® remains horizontal. This will allow for easier packing.



6
Tuck the backdrop in as the Hoverball® collapses. This will make it easier to roll. You can push down on the ends to try and force air out of the vents more quickly.

Unstring and Disassemble Bows



Bend the bow and slide the top string loop down the top limb so it hangs loose. Remove the string from the bottom limb notch and slide the loop off the top limb so the string is removed completely from the bow.



Use one hand to firmly grip the riser, and the other hand to firmly grip a limb. Pull the limb and riser apart. Repeat for the remaining limb.



Place the limbs together and put the large loop of the string around the top notch of the limbs. Wrap the string around and down the limbs. When the string has about 5" remaining, tuck the bottom loop under the wound string.

Equipment Packing



The key to packing is a good roll. This is accomplished by folding the material neatly into the middle of the Hoverball® Archery Target unit. Start at the end opposite of the blower air portal. Fold the front side in, then fold the back side in so only the black underside is visible. Then start rolling toward the other end.



Continue to fold the front and back in, and roll toward the opposite end. Force air out of the Hoverball® towards the blower air portal. Roll as tightly as possible. Keep the roll lined up, tuck in any extra material, and do not allow any part of the roll to sag. Take your time and roll it tight. When finished, tuck in blower air portal.



Take the two straps and tie them around the rolled Hoverball®.



Pack blower in the bottom (wheeled end of the bag). Place metal stakes in the exterior pocket on the top of the bag



Place rolled range into the bag. Fold and place tarp into the bag.



Zip and fasten the handles.

Equipment Inspection



Before Shooting:

- Inspect the Mobile Range for any condition that might pose a potential hazard to safe operation.
- If unsafe conditions exist, contact the *Kent York, Marketing Director 612-760-8430* to help mitigate those conditions. If unsafe conditions cannot be made safe, the range **MUST NOT** be opened.
- Inspect the shooting sports equipment for any condition that might pose a potential hazard to the safe operation of that equipment.
- Any shooting sports equipment that is not fully functional **MUST NOT** be used until it is repaired.

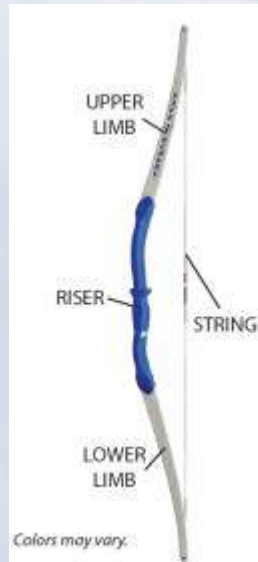
Equipment Inspection (Cont.)



After Shooting:






- Clean the shooting sports equipment. This may be as simple as wiping dirt and fingerprints off the equipment.
- Put away shooting sports equipment, including safety equipment in the black case.
- If there is equipment that malfunctioned or was unsafe to operate, that equipment should be tagged to be repaired or replaced when the range is returned.

Bow Maintenance



The bow consists of four major parts: Riser, Upper limb, Lower limb, and String. Each part requires its own specific care to keep it working well and looking good. Continued rough play may result in premature wear and tear on the bow.

Instructions for the care of S.A.F.E. Archery® bows:

-  Never fire a bow without an arrow. "Dry firing" causes the limbs to absorb the shock the arrow was designed to take and can damage the limbs.
-  Do not stand/lean bows against walls. Standing or leaning the bow can cause the limbs to warp. Instruct players to hold bows by riser and lay flat when not in use.
-  Clean your bows often. Bows can be cleaned with dish soap and water. Never use chemicals, alcohol, wipes or solvents to clean the bows.
-  Store your bows properly while not in use. The bow should be stored unstrung, disassembled, (or hung properly for short-term storage). They should be stored in a cool, dry place.
-  Avoid leaving and/or storing in extreme temperatures (especially heat and humidity).

Check the bows periodically for:

- Stress fractures, which are evident by discoloration
- Chips, as they will increase the chance of breaking
- Strings that are frayed, have broken strands, and/or loose (unraveled) serving (replace string if needed)

The finger protectors should be adjusted so that an arrow leaves the string at a 90-degree angle while seated on the string. There should be a slight gap between the finger protectors and the nock. Do not put the finger protectors touching the nock or it may hinder the release of the arrow.



Examine your bow string. The bow string is a continuous loop and should not require adjustments. Strings should be waxed occasionally to help increase the life of the string. If your bow string starts to become frayed or fuzzy, it is time to wax. Purchase string wax at your local archery store.



Frayed string



Take a tube of string wax and turn it along the string in areas that don't have an outer coating.



Use your fingers to rub up and down on the string to help the wax coat the string.

Arrow Maintenance



The patented "non-lethal" arrows consist of five major parts: The foam tip, blunt, shaft, vanes, and Safe Nock™. Some simple things to remember in the care of the non-lethal arrows are:



Inspect Foam Tips

Foam tips should be inspected for wear. Old or heavily worn foam tips should be replaced immediately. Please contact us to purchase foam tips. Replace the tip by simply holding the blunt with one hand and turn the foam tip with the other hand.



Inspect Blunts

Blunts should be inspected for stress and fracture marks. Routinely check your arrows to make sure that the blunts are not loose. You can perform this simple test by twisting on the blunt (the plastic part) while pulling on the arrow shaft. The blunt should not come loose. If arrows are failing, please take them out of service IMMEDIATELY.



Inspect Shafts

Shafts should be inspected for fractures. Most visible fractures will be seen near the nock end and blunt end of the arrow. Flex arrow slightly to check for fractures of the shaft inner wall.



Check Nocks

Safe Nocks™ should be checked to ensure they are properly seated in the arrow shaft and are not broken. If nocks are coming off the arrow during firing, remove the arrow from use and contact us immediately.

Hoverball Archery How To Videos



How To Videos: <http://safearchery.com/howto>

Check out these videos on various aspects of range operation including: Setup, Recurve bow assembly and shooting techniques.



SECTION II



Range Layout





Range Layout

A Safe Area

- Whether inside or outside, be sure the range is set up so no one can accidentally walk in front of the firing line.
- When indoors, make sure doors and side windows are locked.
- When outside, make sure to always shoot in a safe direction.
- In either case, never point the arrow toward windows or where people might walk.



Range Layout (Cont.)

A Safe Distance

Maintain at least 15 feet between the shooter and the target.

Utilize the pop-up tent and mesh side panels to create a protected space.



Range Operations

(Cont.)

The Safety Officer makes sure the range is clear, and that there is one staff member assisting archers for each of the two stations per range.

Staff assist participants in nocking and firing a set number of arrows (usually 3 per participant, depending on wait times)

Staff correct and assist as needed.

A fallen arrow is a dead arrow. Do not reach to pick it up.

Range Safety Officer stops all shooting while arrows are retrieved by staff and replaced in stands



Range Operations

(Cont.)

When all archers are done shooting - or a Safety incident occurs, the Safety Officer commands

“STOP”

Participants hang the bows on stands provided and exit the range.

The next two participants come to the line and are assisted by staff in picking up the bows and preparing to shoot, including arm guards and eye protection (which may be distributed while “on deck” in line depending on the number of staff).



SECTION III

Training Participants



Learning Objectives

- To teach how to use a Bow and Arrow safely
- To teach basic Archery shooting skills
- To have fun



Teaching Tips

- Use a positive approach. Use praise sincerely.
- Allow each participant to feel the satisfaction of hitting a target as quickly as possible.

NOTE - Do not show a participant what he/she is doing wrong. Show them how to do it correctly.



Shooting Basics



Teaching Someone to Shoot

These are some basic instructions on how to shoot:

1. Stand perpendicular (at a 90-degree angle) from the target with feet shoulder-width apart and back straight. Right-handed archers will place the left foot toward the shooting line and left-handed archers will place the right foot toward the shooting line.
2. Hold the bow in the non-dominant hand, with the hand just below the arrow rest (riser shelf). The S.A.F.E. Archery® logo is on the top limb.
3. Turn the bow so it is horizontal. Place the arrow on the riser shelf facing upward.
4. Load, or nock, the arrow with the index vane facing you, on the same side of the riser as the non-dominant hand. Place the nock between the finger protectors, clicking it onto the string.
5. The bowstring is drawn with the dominant arm. Place the index finger tip on the top finger protector and two finger tips on the lower protector.
6. Bring the bow up to vertical. Tilt the bow slightly for a good line of sight down the arrow shaft, and so the arrow remains on the riser shelf. Right-handed archers will tilt the bow slightly to the right and the left-handed archers will tilt slightly to the left.
7. Make sure the arm holding the bow riser is bent slightly at your elbow (do not lock your elbow straight). This helps keep the string from hitting your forearm causing "string burn".
8. The eye should look down the arrow shaft to aim. Archers may want to keep both eyes open if the eye opposite the arrow shaft is dominant.
9. With the head facing the target, drawn the bow string across the chest, back to the jaw. Use the entire arm and not just the wrist. The arm holding the bow should be slightly bent to help prevent the string from impacting the forearm. The elbow of the dominant arm should be pulled back toward the ear. The elbow will be in line with or slightly above the arrow shaft. The target ball should be hovering slightly off center toward your dominant hand (above right for right handed archers, above left for left handed archers).
10. Release your fingers from the finger protectors and the arrow will take flight.





Shooting Basics (Cont.)



Grip the string on the no-glove finger protectors with your index finger above the arrow and next two fingers below the arrow.



Nock (load) the arrow between the no-glove finger protectors. Make sure the index vane faces you.



Bring the bow up to vertical and tilt the bow slightly to help keep the arrow on the shelf.



*Right-handed shooter
(grip riser with left hand,
pull string with right hand)*



Turn the bow horizontal and place arrow on riser shelf closest to you.



Your elbow should be slightly bent (not locked straight) to prevent string from impacting forearm.



Grip the bow with your non-dominant hand.

1
Stand at 90° angle from target with your feet square with your shoulders.



Pull back in a straight line so your elbow is behind you and fingers are near the corner of your mouth.



Aim so the target ball is hovering slightly above the foam tip of your arrow.



Release your grip on the string and let the arrow take flight.





Shooting Basics (Cont.)

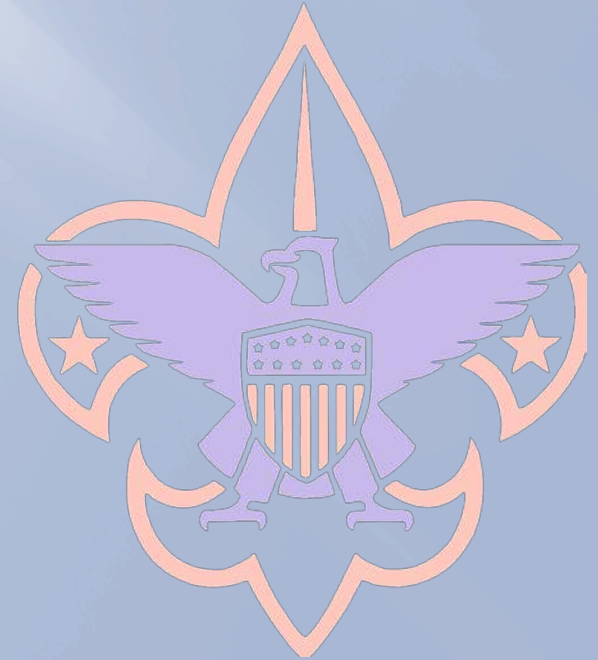
Aim

Index finger comes to the corner of the mouth. Touch your smile.

Look at the target. Bowstring centers across the target.

Bowstring appears as a blur. Position the arrow point on the target

What Do I Do Now?





What Do I Do Now?

NOTE -

Allocate time before range session to:

- **Check the range and supplies. (1/2 hour)**
- **Find, setup and check the equipment. (1 to 2 hours)**



What Do I Do Now?

NOTE - TIPS

DO NOT TEACH NEGATIVELY.

Excuse non compliant Participants (and Parents).

Be wary of changing weather and wind conditions.



What Do I Do Now?

NOTE - Learn More

- **Become a an official BSA RangeMaster.**
 - This will enable you to run a full archery range
- **Become a USA Archery Level I Instructor.**



Thanks!

- Thank you taking this training and for helping share some of the adventure of Scouting with the community!
- Special thanks to Scott Mehl and Ten Ring for their help in creating this training
- See the Appendix that follows for more “Shooting Basics” for specific archery training

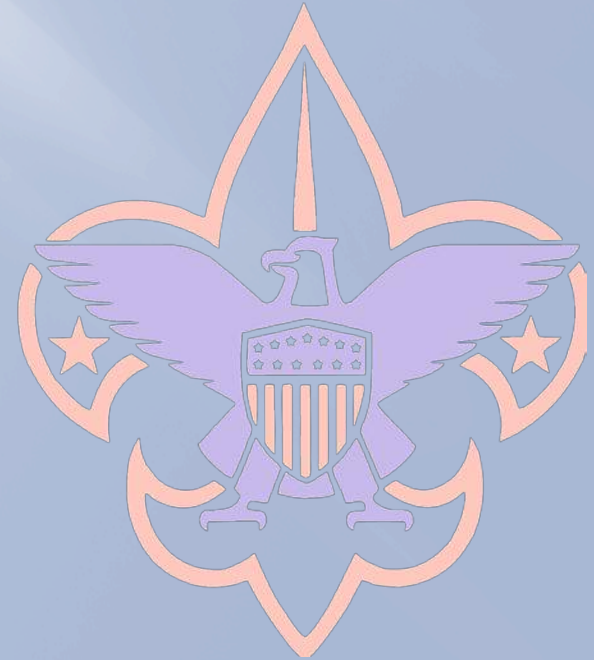
Appendix

Greater detail on providing
instruction to archers



Archery Training

**This is what you teach
(as best you can in the limited
time available)**





Shooting Basics

Eye Dominance

Before shooting a bow or getting to the line, the participants should determine which eye is dominant. Just as people are either right- or left-handed, one eye is more dominant than the other. Discovering which eye a shooter favors is important because it could determine on which side the bow should be held.

To find which eye is dominant, have participants extend both arms in front of them and form a small hole with their thumbs and index fingers. Instruct them to look at a distant object through the opening and then pull their hands back to their face. The eye that is in line with the object is dominant.

Practice sight picture and correct sight alignment.



Shooting Basics

Stance

Have the archers turn sideways to the target, with their left shoulder toward the target. (Left-handers should stand with their right shoulder toward the target.) Weight should be evenly distributed and feet should be as wide apart as is comfortable (approximately shoulder width). This is called the square stance.

After archers are familiar with the square stance, instruct them to move their right foot forward, toward the person in front of them, until the instep of their right foot lines up with the toe of their left foot. Tell archers to rise up on their toes and take a one-eighth turn toward the target. This is called the oblique stance. The oblique stance allows beginners to use their back muscles immediately, moves the string away from the bow arm so there is less chance of string slap, and provides a secure base.

Use the foot marks on the rugs provided as guides



Shooting Basics (Cont.)

Nock the Arrow

To nock the arrow means to place the arrow on the string and the bow. With your right hand, lay the shaft of the arrow on the arrow rest and nock the arrow by fitting the notched end of the string just below the string's nocking point. Be sure the odd-colored feather (cock) is facing away from the bow.

The left hand holds the bow with the tip tilted away from the body at a 20-degree angle and with the string toward the body. Grasp an arrow by the nock between the thumb and index finger of the right hand.

Each arrow is nocked so it is at a 90-degree angle with the bowstring.

Place the index finger of the right hand above the nock and the next two fingers below the nock. This is known as a split-finger nock.



Shooting Basics (Cont.)

Establish the Bow Hold

Each archer should extend his left arm toward the target with the left hand in a “handshake” position. Place the pivot point of the bow handle in the “V” formed by the thumb and forefinger of the left hand. Drop the forefinger around the back of the bow with the thumb resting lightly over the forefinger. The other three fingers should be pointing toward the target.

Inform archers that the pivot point should touch only the meaty part of the thumb and that no other part of the hand or palm should touch the bow. Extending the last three fingers toward the target will help the students keep the palm off the bow. This should result in a relaxed hold on the bow and avoid “gripping” the bow handle. The wrist should be straight but relaxed. Have the student relax and hold the bow at his side with the string up so the bow does not interfere with students on either side. Tell each student to raise his head, look at the bull’s-eye, raise the bow arm to shoulder height, and lower it again to the side.



Shooting Basics (Cont.)

Draw

Each archer should extend his left arm toward the target with the left hand in a “handshake” position. Place the pivot point of the bow handle in the “V” formed by the thumb and forefinger of the left hand. Drop the forefinger around the back of the bow with the thumb resting lightly over the forefinger. The other three fingers should be pointing toward the target.

Inform archers that the pivot point should touch only the meaty part of the thumb and that no other part of the hand or palm should touch the bow. Extending the last three fingers toward the target will help the students keep the palm off the bow. This should result in a relaxed hold on the bow and avoid “gripping” the bow handle. The wrist should be straight but relaxed. Have the student relax and hold the bow at his side with the string up so the bow does not interfere with students on either side. Tell each student to raise his head, look at the bull’s-eye, raise the bow arm to shoulder height, and lower it again to the side.



Shooting Basics (Cont.)

Aim

Index finger comes to the corner of the mouth. Touch your smile.

Look at the target. Bowstring centers across the target.

Bowstring appears as a blur. Position the arrow point on the target



Shooting Basics (Cont.)

Anchor

At the completion of the draw, the relaxed thumb of the right hand finds an anchor spot under the jawbone. If this is too difficult, rest the forefinger along the side of the jaw. Using the jawbone as an anchor, the bowstring will touch the nose and the center of the chin. USA Archery also suggests teaching a beginner to use the corner of his mouth as an anchor.

It is important that the anchor point be the same for every shot. Therefore, through practice, the most comfortable anchor point should be established.



Shooting Basics (Cont.)

Release or Loose

Proper release of a well-aimed arrow makes the difference between a good or poor shot. It is a delicate action. Hold the bow with a relaxed grip. The hand is opened with the fingers moving quickly and precisely off the nock and the string at the same time. The action of the back muscles will cause the right elbow to come back as the shoulder blades come together. If alignment is kept, the right hand will pass along the side of the neck. This is a natural reaction and not a conscious motion if the back muscles are being properly used. Keep the left arm in the same position as for a full draw. Relax the wrist. Keep alignment. Avoid tension. Keep the bow at the same level that it was at full draw.



Shooting Basics (Cont.)

Follow Through

Keep aiming until the arrow hits the target. Throwing the hand out from the shoulder after the arrow is on its way invariably means that the fingers have been jerked away from the string. After release, the fingers should not be more than an inch away from and behind the anchor point. The bow should not drop immediately. If it does, it usually means that it was jerked at release. Hold the position until the arrow strikes the target to make certain the whole process is smooth. In a good follow-through, your right hand will be at the back of your neck and your arm will be lined up perfectly.



Shooting Basics (Cont.)

NOTE - Keep it Simple

- These last few fundamentals may be difficult for participants to master in this introductory activity.
- Concentrate on Aiming and Follow Through.