# Rifle Lesson Plans

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**Additional Lesson Plans and Fact Sheets to aid in Rifle Instruction** can be found on the Georgia 4-H S.A.F.E. Website at: [http://www.georgia4h.org/safe/disciplines/rifle.htm](http://www.georgia4h.org/safe/disciplines/rifle.htm)

- Eye Dominance Fact Sheets
- Glossary of Shooting Sports Terms
- Basic Rifle for the Dumbfounded
- Hints for Sight Alignment
- Target Stand Plans
- Competition Guidelines (Rules) for 22 Rimfire, BB, and Air Rifle
Basic Rifle Lesson 1

Introduction to the Rifle - First Shot Fundamentals

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Objectives

Participating youth and adults will:
1. Understand basic firearm safety.
2. Utilize eye and ear protection.
3. Recognize and identify the basic parts of a rifle.
4. Understand the functions of those parts.
5. Understand how to use different types of sights.
6. Determine their eye dominance.
7. Understand the basics of range rules and etiquette.
8. Understand sight alignment.
10. Safely fire their first shot – First Shot Fundamentals.
11. Have fun while learning.

Roles for Teen and Junior Leaders

- Demonstrate equipment and how it functions.
- Assist with eye dominance exercise.
- Demonstrate range behavior and etiquette.
- Present selected parts of the lesson.

Parental Involvement

- See Roles for Teen and Junior Leaders above.
- Act as assistant instructors or range personnel.
- Arrange for or provide transportation.
- Arrange for or provide refreshments.
- Discuss personal experiences as appropriate.

Best Time to Teach
Any time of the year

Best Location
Classroom or range

Time Required
About 1 1/2 hour

Materials/Equipment
- flip chart or chalkboard and appropriate writing materials
- wooden sight blocks
- cardboard cutouts of different front and rear sights
- paper towel tubes
- sights attached with Velcro to PVC pipe
- telescopic sight
- rifle and/or rifle chart, overhead or slides

References
Fact Sheet 3: Determining Eye Dominance. Four-in-One Shooting Instruction DVD - Basic Rifle Shooting – A Better Way. Contact your state coordinator or Federal Cartridge Company. Anoka, MN.

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Presentation

I. Introduction
   A. Introduce facility and rules
      1. Food and drink
      2. Time schedule
      3. Discipline and courtesy
      4. Safety
         a. Eye protection
         b. Ear protection
         c. Common sense
         d. Personal responsibility
      5. Range Etiquette
      6. Firing line
   B. Review basic safety rules - MAT
      1. Muzzle control
      2. Action open
      3. Finger off trigger

II. Eye dominance
   A. Determine eye dominance
   B. Importance of good shooting
      1. Use dominant eye
         a. reduced eye fatigue
         b. reduced tension
         c. quicker target acquisition
      2. Both eyes open
         a. reduced eye fatigue
         b. better depth perception
   C. Coping with cross-dominance
      1. Eye dominance and hand dominance on opposite sides
      2. Learn to shoot from dominant-eye side
         a. reduced strain on eyes
         b. manual dexterity easier to teach
         c. may require one-eyed shooting (rarely)
         d. blinders
         e. spot on shooting glasses

III. First Shot Fundamentals
   A. Basic parts of the rifle
      1. Stock-allows shooter to control the rifle
      2. Action-consists of firing mechanism, trigger, and safety.
      3. Barrel-provides a method for directing the projectile toward the target
   B. Sight Alignment
      1. Rear Sight
      2. Front Sight
   C. Sight Picture
      1. Rear Sight
      2. Front Sight
      3. Target Back
   D. Range Rules - basic rules needed to get off the first shot
   E. Shooting at Target Backs - make sure equipment and range is ready prior to start of class

Application

INTRODUCE facility and any specific rules for using it. If possible, provide written rules for review at home.

STRESS necessity of eye and ear protection for all shooters and spectators when using firearms. Ear protection may not be needed in some situations using air guns.

STRESS personal responsibility for shooting safety, authority of range officer and common sense.

ASK participants to list some basic rules for safe shooting. RECORD answers to STRESS fundamentals for range sessions.

HAVE participants pair up and determine their eye dominance (see Fact Sheet 3: Determining Eye Dominance).

DISCUSS reasons for learning to shoot with the dominant eye even if it means relearning.
IV. Orientation to the rifle

A. Stock
1. Primary functions
   a. grip or handle
   b. control
   c. recoil distribution
2. Forearm (forend, fore stock)
   a. non-dominant hand grip and control
   b. support and orientation of barrel
3. Grip (wrist, small or pistol grip)
   a. dominant hand grip
   b. location and orientation of trigger hand
4. Butt stock
   a. comb
      1) cheek rest
      2) orients eye with sights
   b. butt
      1) supports rifle on shoulder
      2) spreads recoil energy

B. Action
1. Operating parts of rifle
2. Bolt or breech block
   a. holds projectile in place
   b. may cock action
   c. ejects spent cartridge
3. Trigger
   a. releases mechanical parts of the action causing rifle to fire
   b. firing pin or hammer
   c. air charge
4. Safety mechanism
   a. mechanical device to block operation of the action
      1) trigger only
      2) trigger and firing pin
   b. potential for failure
   c. shooter ultimately responsible for safety
      1) muzzle pointed in safe direction
      2) personally check safety of any shot before firing

C. Barrel
1. Primary function – launching tube for projectile
2. Chamber
   a. holds cartridge
   b. chamberings specific to cartridge design
   c. fit of cartridge and chamber critical
3. Muzzle
   a. where the projectile exits
   b. points toward impact site
4. Bore
   a. cylindrical hole between chamber and muzzle
   b. contains and guides projectile
   c. diameter specific to caliber

USE an unloaded rifle, poster or other illustration to POINT OUT and DISCUSS various parts of firearm.

POINT OUT parts of stock and ILLUSTRATE how they function.

ASK participants why three major contact points for rifle are important to good shooting.

DISCUSS significance of support in precise shooting.

USE several comb designs (if available) to show how they aid in sighting.

DEMONSTRATE how butt spreads recoil.

USE paper towel tube to illustrate rifle barrel.

PASS AROUND section of rifle barrel or use an ILLUSTRATION of one to show various parts and their functions.

STRESS importance of matching ammunition to the chambering. Show barrel stamp, cartridge head stamp and ammunition box information.

STRESS muzzle control again here.
5. Rifling
   a. spiral ridges (lands) and grooves
   b. spins projectile for stability

6. Sights
   a. reference points
   b. align eye with bore
   c. align bore with intended point of impact

V. Types of rifle sights
   A. “Open” sights
      1. Partridge - sights
         a. square notch and rectangular post
         b. more common on pistols
         c. post centered in notch and even with top of rear site
      2. Notch or vee sights
         a. V – groove with or without semi-circular notch
         b. bead or ball on post front sight
         c. bead centered in notch or base of V-groove
      3. Buckhorn sight
         a. similar to grooved sight with high, sometimes curved side walls
         b. bead front sight

   B. Peep or receiver sights
      1. Aperture rear sight
      2. Bead and post, post or aperture front sight
      3. Front sight centered in rear aperture

   C. Optical sights
      1. Aim-points
         a. superimposed dot on target
      2. Laser sights
         a. projected dot on target
      3. Telescopic sights
         a. target viewed through lenses
         b. may or may not magnify image
         c. variety of reticles
            1) cross-hair
            2) post
            3) dot
            4) duplex (tapered posts and cross-hairs)
            5) range finding
               (multiple stadia wires)

   D. Sight selection
      1. Selection factors
         a. rule or regulation restrictions
         b. visual acuity
         c. purpose
         d. expense
      2. Precision shooting
         a. Receiver sights
         b. Telescopic sights
      3. Hunting
         a. Telescopic sights
         b. receiver sights
         c. open sights
      4. Plinking, fun shooting
         a. any sights

POINT OUT sights on rifle being used for this session. ASK participants to DISCUSS functions of sights.

ILLUSTRATE several types of sights using firearms, visual aids or models made from cardboard.

DEMONSTRATE proper sight alignment with each type of sight.

DISCUSS advantages and disadvantages of using each type of sight for various purposes.

NOTE that with practice receiver sights are more easily and more quickly used, as well as being more precise than open sights.

NOTE that aim-points and laser sights are rarely used on rifles today.

If available, ILLUSTRATE variety of telescopic sights and reticle types.

Have participants DISCUSS possible advantages and disadvantages of various types.

LEAD participants in discussing how to select a type of sight for type of shooting that is going to be done.

NOTE that rules of some matches dictate type of sight to be used.
VI. Summary

A. Review location and range rules
B. Review fundamental safety rules
   1. Muzzle control
   2. Action open and empty
   3. Finger off trigger
   4. Eye and ear protection
   5. Personal responsibility
C. Review the parts and operation of the rifle
   1. Stock
   2. Action
   3. Barrel
D. Review the types and uses of rifle sights
   1. Open sights
   2. Receiver sights
   3. Optical sights
E. Review eye dominance and reasons for shooting with the dominant eye

USE discovery teaching technique (questions leading to conclusions you wish to draw) to have participants summarize lesson. BE SURE that all major points are covered.
Lesson Narrative

Instructor note: The first part of the introduction must be customized to the site and any specific rules and regulations that apply to it. Good teaching and learning require that you create a positive, respectful and mutually supportive atmosphere. The range must be firmly and absolutely under the control of the range officer, but the atmosphere must be friendly and supportive. The introductory statement is your first opportunity to set that tone. Exercise great care in phrasing your comments.

As in all other shooting sports lessons, these may be combined into longer sessions if the situation dictates. The greatest concern in longer sessions is fatigue and lapses of attention. Be cautious and aware of young audiences.

Welcome to the first session on rifle shooting. Before we begin today’s program, we need to introduce ourselves and become familiar with this facility. Introduce yourself and any other instructors, teen leaders or sponsors. If time permits, have the kids and their parents introduce themselves as well. Note the locations of food and drinks, bathroom facilities and any off-limit areas. Note the time schedule you will be following, too. If an indoor range is being used, stress that no food or drink will be allowed on the range – to avoid ingesting air-borne lead. Shooters must wash their hands and face before eating or drinking any time they handle lead pellets or fire any powder burning rifle.

Rifle shooting is a very safe sport, but it is only as safe as the people participating in it. Because of this, we will be teaching discipline, range control commands and range courtesy as we teach the other elements of rifle shooting. Since each person has only one set of eyes and ears, we will require that everyone on the range wear eye and ear protection during live firing. Tempered eye glasses, safety glasses or shooting glasses may be worn to protect the eyes. Foams plugs, custom fitted plugs or ear muffs may be worn to protect the ears. Shooting safety is mostly common sense and personal responsibility. Those characteristics are usually linked to adult behavior. During these sessions, we will treat you like adults and expect you to act in an adult manner on the range. No abusive, disruptive or foolish behavior will be tolerated. One instance of such behavior will result in the person being removed from the range for that session.

Repeated problems may result in the person being banned from the program.

When more than one shooter is shooting on a firing line, some means of control is essential. We will be using a range officer and range commands to control our shooting. All rifles are to be made safe (empty, action open and chamber exposed) and grounded (placed on the shooting mat) until the range officer gives the command to make ready. Once the make-ready period is completed, the range officer will call “Ready on the firing line? Please respond by firing point number?” Each shooter or coach should respond by stating “ready” or “not ready” and the firing point number. This increases involvement and provides better control of the firing line in the early stages of instruction.

As the shooters become more experienced, this command may be replaced by a more traditional series of commands. “Ready on the right? Ready on the left? Ready on the firing line?” Appropriate pauses follow each one as the range officer watches for responses. Any shooter not ready should raise a hand and call out “not ready.” When the range officer has determined that the range is safe and ready, he or she will state “the line is ready.” The next command will be “commence firing.” In competitions, the range officer may state the time limit for shooters to complete that stage of the competition. At the end of the stage or at any time when an unsafe condition develops, the range officer will call “cease fire.” At that command the shooters must immediately stop shooting, unload and open their rifles and place them on the bench or shooting mat with the action exposed and the muzzle pointing down range. Anyone may call cease fire if they see an unsafe situation. If the stage is completed, the rifle is made safe and grounded. After doing so, the shooter steps back one step from the firing line and waits for further instruction from the range officer. The purpose of a firing line is to keep all shooters in a line. Should shooters drift back from the line or move beyond it, an unsafe situation might develop. For that reason, everyone on the range should make active shooters stay on the firing line during a shooting session.

There are 10 Commandments of Shooting Safety. For our purposes, we will stick with three cardinal rules.

1. Always keep the **muzzle** pointed in a safe direction. That means point it straight up while carrying it into the range area and down range from that point on. It is vitally important to always watch where the muzzle is pointed.

2. Keep the **action** open except when the range officer has declared the range ready and the firearm is loaded for shooting.

3. Keep fingers off the **trigger** until ready to fire.

Following these three simple rules and using a little common sense and courtesy can keep the firing line safe for all shooters.
Orientation to the Rifle

Rifles, like many other firearms, are composed of three basic elements: a stock, an action and a barrel. These parts work together to make a functioning rifle. The stock functions as a grip or control element and also helps to direct and distribute recoil energy. The forend or forearm is supported by the non-dominant hand (dominance is always related to the eyes). The forend provides support for the barrel and aids in directing it toward the target. The grip (wrist, small or pistol grip) provides a secure surface for the dominant hand and helps to locate and position the trigger finger.

The remainder of the butt stock serves several functions. The comb supports the face and helps to align the eye with the sights. The butt supports the rifle on the shoulder and helps to distribute the recoil energy. In general, the stock helps to position the rifle relative to the shooter and to place its other parts in a location where they can be conveniently used.

The action contains the operating parts of the rifle – those parts that cock, load and fire it. The bolt or breech block may be involved in cocking the trigger mechanism, but its main function is to lock the cartridge in place and to firmly support its base or head. The trigger is a lever that releases the firing mechanism, causing the rifle to fire. In powder-burning rifles, the trigger releases a firing pin or hammer that strikes a primer, setting off the chemical part of the shooting process. In air guns, it releases the air charge to drive the projectile. The safety mechanism is another obvious and important part of the action. It is a mechanical device. Like other mechanical devices it can fail or break. The shooter should learn to use the safety only in addition to proper and safe firearms handling. Some safeties block the operation of the trigger. Others may lock the firing pin in place. Still others may lock all parts of the action. However, the only truly adequate safety is the one behind the bolt – the shooter. Keeping the firearm pointed in a safe direction at all times prevents accidents.

The barrel is a launching tube for the projectile. It is designed to contain the great pressures generated when a rifle is fired. On the action end of the barrel, a specially shaped opening, called the chamber, is designed to fit a specific cartridge. It supports the cartridge firmly and allows the case to seal the chamber when the arm is fired. The opposite end is the muzzle. It is the spot where the bullet exits, and it points toward the impact point of the projectile. The cylindrical hole between the chamber and the muzzle is the bore. It has a diameter specific to the chambering, which permits the bullet to seal the bore while still being able to pass through it. The rifle bore has spiral set of ridges (lands) and grooves (rifling). These lands and grooves cause the bullet to spin, giving it greater stability in flight.
The barrel is fitted with sights. They are reference points that align the eye with the bore so that the shooter looks where the bullet is going. Once the sights are aligned with the barrel, the entire unit may be moved to point the barrel at the intended point of impact. Many different types of sights exist, but all of them serve the same purpose.

**Types of Rifle Sights**

Rifle sights may be divided into metallic sights and optical sights. Metallic sights can be further divided into **open sights**, those with metal only at the bottom and perhaps sides, and **receiver** or **peep sights**, which use a hole or aperture as an aiming point.

Open sights come in a wide variety of designs, but they can be grouped into three basic categories. **Patridge-style sights** have a square notch and flat top on the rear sight and a rectangular post or blade as a front sight. The sights are aligned by centering the post in the rear notch and aligning the top of the post with the top surface of the rear sight. **Notch or V-sights** feature a V-groove with or without a notch in the center. The front sight is usually a bead or ball on a thin post. They are aligned by placing the full ball or bead in the notch or at the base of the V-groove. **Buckhorn sights** are similar to notch sights, but they carry extended “horns” up the sides of the sighting area.

Receiver or peep sights have a relatively small aperture or hole in a disk as a rear sight. The shooter looks through the hole to the front sight, which may be a post, a bead or ball on a post or another aperture. The front sight is simply centered in the opening to align the sights. Receiver sights are more accurate and quicker to use after a little practice than open sights.

**Optical sights** come in several varieties. Aim-point devices superimpose an electrically generated aiming dot on the target. While they are popular with some pistol shooters, relatively few are used by rifle shooters. **Laser sights** project an aiming dot onto the target. Although they are used by some police and military agencies, the shooting public rarely uses them. Most shooters use a **telescopic sight** when they elect to shoot with an optical sight. The lenses tend to put the target and the reticle (the aiming device) on a common focal plane, so the shooter can see both of them more clearly. These sights may or may not magnify the target. They eliminate the need for sight alignment and provide more precise aiming than other types of sights. A wide variety of reticles are available in telescopic sights.

The most common reticle is a cross-hair or cross-wire design, where the intersection of the stadia wires is the aiming point. Some shooters prefer one or more posts, either flat topped or tapered. Others prefer a dot suspended on extremely fine cross hairs. The duplex style is also popular, where relatively fine tapered posts or coarse tapered cross hairs become a fine set of cross hairs in the center of the scope. Some sights have multiple stadia wires that can be used as a range finder. Each of these reticles has advantages but the duplex, cross hair, dot and post are the most commonly seen.

Sight selection must consider several factors. The rules of the match may restrict the selection. Many matches, for example, stipulate that only metallic sights can be used. The shooter’s vision may influence the type of sight that can be used effectively. The purpose for which the sight and the rifle will be used strongly influences the type of sight selected. Expense is also a significant factor. Generally open sights are provided with rifles and are the cheapest. High quality receiver sights and optical sights are much more expensive.

For precision shooting, most shooters rely on either good receiver sights or telescopic sights (when permitted by the rules). Position shooters usually use metallic sights, while light rifle, silhouette or bench-rest shooters usually rely on optical sights. Hunters usually elect telescopic sights or receiver sights, although large numbers of hunters who take their game at close ranges use open sights. Some special hunts, like primitive hunts, require open sights. For **plinking** and fun shooting, any sight that will let you shoot up to your standard of accuracy is fine.
Eye Dominance

Learning to shoot well is much easier when the shooter uses their dominant eye for sighting. Nearly everyone has a dominant eye, just as they have a dominant hand and a dominant foot. Select a partner and stand squarely facing that partner two to three arm-lengths apart. One member of each pair needs to be an observer. The other member will be the “shooter.” Shooters should extend their arms forward with the hands in front of the waist and place one thumb on top of the other one. Keeping the thumbs in place, cross the fingers of the top hand over the fingers of the bottom hand to form a small triangle. Now, with both eyes open, extend the arms to eye height and look at the observer’s nose through the opening. The observer should note which eye they see looking back through the triangular opening. Then, keeping the nose centered in the opening, the shooter should slowly bring the hands back to his or her face. The opening will come to the dominant eye. The observer should watch for switching between the eyes as the hands move toward the face. The shooter should stand square to the observer without leaning, canting the head or squinting one eye. Try it a couple times to confirm your observation, then switch roles and repeat the process.

How many of you came to your left eye? Right eye? You should shoot with the dominant eye, regardless of whether it is on the same side as your dominant hand. Using the dominant eye reduces tension and eye fatigue and helps in seeing the target clearly and quickly. Keeping both eyes open increases depth perception as well. Those whose eye and hand dominance is on opposite sides are cross-dominant. You should shoot from the dominant eye side, even though it feels clumsy and uncomfortable. Your hands and feet are much easier to train than your eyes. Even if you are already shooting from the “off-eye” side, you will improve more rapidly by switching to the dominant side.

A few people are ambidextrous. A similar number are ambi-eyed, that is, their eyes switch dominance when an obstacle is placed in front of them. Shooters with this situation can use a shield, a spot on their shooting glasses or some similar barrier to assure the same eye is used every time they shoot. Even persons with a specific eye dominance may find a barrier device helpful. Be sure you remember which eye is your dominant one so you can use that side in your shooting.

Summary

We have learned about the facilities we will be using and about the basic rules and regulations for using them. We have also learned the three cardinal rules to help keep our shooting safe.

1. We will keep our muzzles pointed in a safe direction.
2. We will keep the action open and the rifle empty except when actually shooting as directed by the range officer.
3. We will keep our fingers off the trigger except when actually firing under the direction of the range officer.

All rules of safe firearms handling apply, but these form the foundation for the target shooter.

We explored the structure of rifles and learned the form and function of the stock, action and barrel. In addition to the parts and functions, we looked at several types of sights and discussed sight selection. Finally, we determined our eye dominance and learned why it is important to shoot with the dominant eye. We also discussed some of the ways to ensure that the dominant eye is used in sighting. Next time we will be using the rifles in a dry-firing exercise on the range.

Summary Activities

1. Have parents or teen leaders go through a range exercise making some deliberate errors in firearms handling. Have participants comment on their mistakes and state what they should have done to handle the firearms properly.
2. Divide into two teams and play an identification game. Show a picture or describe a function of a rifle part. Alternate between teams and make sure each member takes a turn in identifying the parts and/or their functions.
3. Have participants check the eye dominance of their parents or other family members.

Sharing and Exhibit Ideas

1. Diagram and label a rifle and its functional parts in your shooting journal or notebook, or make a poster to illustrate the parts and function of a rifle.
2. Develop a set of posters or signs that reinforce the rules of safe firearms handling on the range.
3. Study a reference on firearms to determine how they work. Study the parts of the firearm more completely. Share your information with other members of your club.

Develop a set of firearms safety posters that can be used in teaching the introductory lesson in rifle shooting.
Rifle Action Types

While the 4-H rifle curriculum is written for one type of rifle, specifically the Daisy Model 853, bolt-action air rifle, there are a variety of rifle action types that may be safely used in 4-H shooting sports programs. It is highly likely that, in time, a young shooter will come into contact with a variety of rifle actions. Therefore, a review of the variety of rifle action types and an opportunity for young shooters to be instructed in and practice proper handling and safe operation of the different types of rifles actions is desirable.

Major Rifle Parts
The modern rifle consists of three major assembly groups: the stock, the barrel, and the action.

* Stock  
The stock may be made of wood, fiberglass, or other synthetic materials. The stock is designed to provide for the support of the rifle by the shooter’s body, and align the axis of the barrel with the dominant eye of the shooter and the intended target in a manner which is comfortable and natural.

* Barrel  
The barrel is a metal tube through which the projectile (bullet) passes when the rifle is fired. The hole through the barrel is called the “bore”. A number of spiraling grooves are cut through the bore. These grooves are called “rifling”. Rifling causes the bullet to spiral. This spiraling gives the bullet stability in flight and provides for greater accuracy.

* Action  
The action of a rifle contains the functional mechanisms which load and fire the cartridge and eject the empty cartridge case.

Action Types
Modern rifles may be divided into two groups: repeating and single shot. Single shot rifles require the shooter to load each cartridge manually. These rifles have no supply of ammunition contained within the mechanism of the rifle. Repeating rifles contain a “magazine”. The magazine is attached to the rifle and holds a supply of cartridges. Cartridges from the magazine are loaded by the functioning of the action. This functioning may be actuated by the shooter (bolt, lever and slide actions) or by the action mechanism itself (semi-automatic action).

Two common magazine types are tubular magazines and box magazines.

**Tubular Magazines:**  
Cylindrical in shape, cartridges are placed ‘nose to tail’ in a single column and are fed by a spring loaded device when released into the action mechanism.

**Box Magazines:**  
Rectangular in shape, cartridges are ‘stacked’ into the magazine, either in a single column or staggered. Box magazines can be entirely internal, or removable. Removable ones are commonly called ‘clips’.
**The Bolt Action:**

Bolt action rifles may be single shot or repeating. The operation of a bolt action requires a lift on the bolt handle, a pull to the rear, and a push forward and down. The bolt contains the firing pin and serves as the mechanism to load a cartridge and lock the action. Generally, actuation of the bolt mechanism also cocks the firing mechanism. After a cartridge is fired, this same operation removes and ejects the empty cartridge case.

The loading sequence for a bolt action:

1. Open the action by lifting bolt handle up and pulling to the rear
2. Lay cartridge in the open action
3. Push bolt handle forward and down pushing the cartridge into the chamber and locking the action

To unload a bolt action:

1. Open the action, ejecting cartridge from chamber (If the rifle contains a magazine, continue to open and close the action, working each cartridge through it until the magazine is empty)
2. Visually inspect chamber and magazine to be sure the rifle is completely unloaded
The pump or slide action:
The forearm of the stock serves as the actuating device for the action, with the shooter pulling the forearm to the rear toward the action. This serves to open the chamber and extract the spent cartridge. Pushing the forearm forward toward the muzzle loads the rifle. Pump action rifles commonly have a tubular magazine.

The loading sequence for the pump action:

1. Pull forearm to rear position to open the action
2. Remove magazine plunger tube and insert cartridges into the magazine
3. Replace plunger tube and lock in place
4. Push forearm to forward position

To unload the pump action:

1. Pull forearm to rear position to open the action
2. Open and close action until all cartridges are ejected
3. With the action open, visually inspect chamber and magazine to be sure the rifle is completely unloaded
The Lever Action:
This repeating action rifle is magazine fed, either tubular or box. The cocking lever is located below the action, surrounds the trigger and functions by moving down and forward to unload the chamber or back and up to load the chamber.

The loading sequence for the lever action is:

1. Insert cartridges into magazine through the loading port
2. Open and close the action to feed a cartridge from the magazine into the chamber

To unload the lever action:

1. Open and close the action until there are no cartridges being ejected
2. With the action open, visually inspect the chamber and magazine to be sure the rifle is completely unloaded
The Falling Block Action:
The falling block action utilizes a breech block instead of a bolt. The action is opened by pushing down and forward on the cocking lever which causes the breech block to “fall” (rotate down) and expose the chamber. Raising the lever closes the action causing the breech block to cover the chamber. All falling block rifles are single shot.

The loading sequence for the falling block is:

1. Lower the lever to open the action
2. Insert cartridge into chamber
3. Raise the lever to close the action

To unload the falling block:

1. Open the action
2. Remove cartridge
3. With the action open, visually inspect the chamber to be sure the rifle is completely unloaded.
The Hinge Action:
The hinge action opens by pushing a release lever that allows the barrel to pivot down and expose the chamber. There are also several brands of rifles of this action type that have more than one barrel, the most common being two barrels, arranged either over/under or side by side.

The loading sequence for the hinge action is:

1. Push release mechanism and pivot barrel(s) to open action
2. Insert cartridge(s) into chamber(s)
3. Pivot barrel up into closed, locked position

To unload the hinge action:

1. Push release mechanism and pivot barrel(s) to open action
2. Remove cartridges
3. Visually inspect chamber(s) to be sure rifle is completely unloaded
The Semi-Automatic action:
This repeating rifle action (often called an auto-loader) utilizes the energy generated by the fired cartridge to activate the mechanism to open the action, extract the empty case, load a new cartridge and close the action.

The loading sequence for the semi-automatic is:

1. Pull bolt open and lock
2. Remove and load cartridges into magazine
3. Replaced loaded magazine in rifle
4. Close action to load cartridge into chamber

To unload the semi-automatic action:

1. Open the action to eject cartridge from chamber and lock action open
2. Remove magazine
   With the action open, visually inspect the chamber and magazine to be sure the rifle is completely unloaded
Basic Rifle Lesson 2

Dry Firing Rifles on Target Backs

William F. Stevens, Ronald Howard Jr., John Kvasnicka, and Marilyn Bergum*

Objectives

Participating youth and adults will:
1. Demonstrate understanding of sight alignment.
2. Understand and demonstrate trigger control.
3. Demonstrate the sequence of elements required to fire a shot by dry firing at target backs from a supported position.
4. Practice the coach-pupil method of instruction.
5. Practice safe range and shooting procedures.
6. Have fun while learning.

Roles for Teen and Junior Leaders

- Review rifle orientation.
- Demonstrate proper shooting form.
- Demonstrate range procedures and commands.
- Assist “coaches” in helping shooters with problems.
- Tutor shooters with particular difficulties.
- Act as assistant range officers.
- Assist with trigger control exercise.

Parental Involvement

See Roles for Teen and Junior Leaders above.
- Control one or two shooting stations, assisting range officers and instructors.
- Arrange for or provide transportation.
- Arrange for or provide refreshments.
- Assist with developing exhibits or filling out shooting journal entries.

Best Time to Teach

Any time of year, but prior to shooting at any scoring target.

Best Location

Any safe shooting range

Time Required

About 1 hour (repeat as necessary)

Materials/Equipment

- rifles
- eye and ear protection
- adequate backstop
- blank paper or targets
- shooting bench with pad
- chairs or bench for shooters
- tape or other target mounting materials
- pen, pencil or fine felt tip pen
- eye or medicine droppers

References

Four-in-One Shooting Instruction DVD
Basic Rifle Shooting – A Better Way
Contact your state Coordinator or Federal Cartridge Co., Anoka, MN.

*Conservation Affairs Manager, Federal Cartridge Company, Anoka, MN; 4-H and Youth Development Specialist.
Texas Agricultural Extension Service; Executive Director. Minnesota Deer Hunters Association; National Rifle Association Field Representative – Minnesota. North Dakota and South Dakota

REVISED by Larry Sullivan and Dick Fultz, 4196
Teaching Outline

Presentation
I. Review orientation to the rifle
   A. Facility and rules
   B. Three basic safety rules
   C. Rifle parts and function
   D. Eye dominance
   E. Sight and sight function

II. Sight alignment
   A. Sights as reference points
      1. Aligning the eye with the bore
      2. Aligning the bore with the intended point of impact
   B. Achieving sight alignment
      1. Focus on front sight
      2. Aligning rear sight with front sight
      3. Maintain front sight focus
   C. Alignment with different sights
      1. Telescopic sights
         a. optics aligned internally
         b. target and sight on same focal plane
      2. Receiver (peep) sights
         a. front sight centered in aperture
         b. “automatic” centering by the eye
      3. Open sights
         a. front sights centered in notch or V-groove
         b. bead centered in groove or blade top even with top of rear sight
   D. Sight alignment critical to accuracy and proper sight adjustment

III. Trigger control
   A. Pressing trigger without changing sight alignment

Application
ASK participants what was covered in last session. Use their responses to REVIEW that content. STRESS safety and responsibility.

USE sight blocks or cut-outs to show proper alignment of each type of sight.

Move “bead” within aperture to DEMONSTRATE centering action of eye.

ASK why consistent sight alignment is important to accuracy.
DISCUSS answers.

DEMONSTRATE trigger control using an eye dropper. NOTE that sights seem to move when whole hand is squeezed.
B. Pressure straight back on trigger with trigger finger
   1. Pressure on the pad of the trigger finger only
   2. Adjust finger position to apply pressure straight back
   3. Sight alignment remains constant

IV. Introduction to shooting range commands and procedures
   A. Basic range procedures
      1. Range officer in charge at all times
      2. Safety first
         a. personal responsibility
         b. eye and ear protection required of everyone on the range when using firearms
         c. No disruptive or abusive behavior
            1) on the range
            2) near the range
      3. Any special circumstances
   B. Basic rifle safety on the range
      1. Muzzle pointed down range
      2. Action open and empty except when instructed to load
         a. exposed for inspection
         b. closed means ready to fire
      3. Finger off trigger except when firing
      4. Procedure if problem occurs
         a. cease fire if necessary
         b. keep rifle pointed down range
         c. raise hand for help
   C. Range commands
      1. “Shooters to the line”
      2. “Is the line ready?
         Respond by firing point number”
      3. “The line is ready”
      4. “Pick up your rifles” (or make ready)
      5. “Commence firing”

Have an assistant DEMONSTRATE effects of moving finger on trigger.

EXPLAIN basic range rules and DISCUSS reasons for them.

STRESS importance of personal responsibility, protecting sight and hearing and orderly behavior. DISCUSS how disruption can cause dangerous reactions.
6. "Cease fire"
   a. immediate response
   b. each shooter's right /responsibility
   c. end of stage or unsafe condition
7. "Make the line safe"
   a. safety on
   b. open action
   c. remove all ammunition
   d. place rifle on mat or bench
   e. muzzle down range
   f. action open, empty, exposed to view

**REVIEW** responses to improper behavior

**COVER** any special rules or safety considerations

**REVIEW and DEMONSTRATE** basic rifle handling on range.

**DEMONSTRATE** how to handle a problem, like a hang-fire

**DEMONSTRATE and DISCUSS** range commands and proper responses by shooters. Refer to *Fact Sheet 16: Rifle and Pistol Range Commands and Procedures* for more detail and explanation.

**USE** clear and consistent range commands while shooters are learning to ensure safety and reinforce shooting procedures.
V. Basics of rifle operation
A. Picking up your rifle
   1. Muzzle down range
      a. shooter responsibility
      b. coach reinforcement
   2. Safety on
      a. location and operation
      b. explain "safe" or "on"
      c. explain "fire" or "off"
   3. Empty with action open
      a. closed action means ready to fire
      b. open action visible
   4. Finger off trigger
B. Loading and unloading
   1. Process
      a. placing projectile in chamber
      b. close and lock action
      c. reverse process to unload
   2. Control of ammunition
      a. identify correct calibers
      b. control all live ammunition
      c. control distribution of ammunition
   3. Charging air rifles
      a. operation
      b. safety - avoiding pinches
   4. Use of dummy ammunition
C. Assume shooting position
   1. Stance or position
   2. Refer to specific lesson for details of position
D. Safety off
E. Align sights
F. Fire when ready
   1. Trigger control
   2. Follow through
G. Cease fire

VI. Coach-pupil method of instruction
A. Pairs of shooters learning together
   1. Reinforcing proper technique
   2. Learning by doing
   3. Backed up by range staff
B. Roles of coach
   1. Watch all safety procedures
   2. Watch muzzle control
   3. Assist with rifle placement
   4. Control ammunition
      a. load rifle in beginning
      b. assist with loading later
C. Adult or teen staff at each firing point as back-up

DEMONSTRATION each part of this with rifles being used for instruction

MATCH shooters in coach-pupil pairs. Having same eye dominance helps with some learning situations.

ASSIGN adult assistants or teen leaders to every firing point.
VII. Dry firing
A. Going through the shooting sequence without ammunition
B. Reasons for dry firing
   1. Avoid tension and noise of live firing
      a. greater concentration on learning how to shoot
      b. develop feel for trigger
      c. develop smoothness
      d. experiment with finger placement
      e. develop consistent trigger control
      f. develop consistent sight alignment
   2. Use dummy ammunition

VIII. Dry firing at target backs
A. Reasons for using blank targets
   1. Less distraction
   2. Concentration on sight alignment
   3. Concentration on trigger control
B. "Coaches" and range assistants watch form and safety
   1. Muzzle control
   2. Focus on front sight
   3. Trigger control
   4. Follow through

IX. Bench-rest position
A. Shooter seated, square to target
B. Rifle supported at forearm
   1. Sandbags
   2. Cradle
   3. Commercial rifle rest
C. Rifle butt in shoulder pocket
D. Elbows resting on bench
E. Dominant-side hand on grip
   1. Finger along trigger guard
   2. Finger OFF trigger
F. Non-dominant hand
   1. Flat on bench
   2. Bracing sandbag under the grip
   3. Bracing dominant elbow
G. Cheek pressed against comb with eye in line with sights
H. Adjust position by moving rest or sandbags

X. Dry firing from a bench-rest position
A. Maintain a bench-rest position

BE SURE all shooters completely understand. DO NOT ASSUME they know either process or language being used. STRESS each vital point.

MATCH shooters in coach-pupil pairs. Having same eye dominance helps with some learning situations.

ASSIGN adult assistants or teen leaders to every firing point.

BE SURE NO LIVE AMMUNITION is present.

DISCUSS purpose in using the blank side of the target. REINFORCE idea that we are working on FUNDAMENTALS: position, sight alignment, and trigger control.

MAINTAIN constant and immediate control over each firing point.

DEMONSTRATE bench-rest position and have all participants PRACTICE using it without rifle.

STRESS importance of moving supports and rifle to target rather than trying to "muscle" it into place.

Have each shooter FIRE their first dry-fired shot following step-by-step commands of instructor. Note that using bench position minimizes fatigue. If greater concentration on trigger control is needed, USE telescopic sights if available.
B. Dry fire by command
   1. Use clear and consistent range commands
   2. Shooting procedure as above
   3. Repeat for several "shots"
C. Reverse roles and repeat sequence

XI. Summary
A. Sight alignment
   1. Front sight focus
   2. Front sight centered in rear sight
   3. Appropriate to sight type
B. Trigger control
   1. Fire without disturbing sight alignment
   2. Follow through
C. Range commands and procedures
D. Shooting procedure
E. Bench-rest position
F. Dry firing practice
G. Live firing begins in the next session

ASSIST shooters having difficulties, but AVOID over-coaching and excessive shooting. Excessive shooting, even dry firing, may slow the learning process.

REVIEW the lesson by questioning the shooters.

STRESS main points in safety and technique. SUPPLY any significant points they may miss.

NOTE that live firing will begin with the next session on range.
Lesson Narrative

In the last session we discussed the facilities and the basic rules for using them. We reviewed the basic rules for shooting safety on the range and emphasized three of them: muzzle pointed in a safe direction, actions open and empty and finger off the trigger. We noted that both eye and ear protection are essential for all persons when firearms are used on the range. Some situations with air rifle may require ear protection but not all. We discussed the parts of the rifle and how they work. We checked our eye dominance, and we discussed sights and how they operate. In this session we will be dry firing to practice sight alignment and trigger control.

Sight Alignment

Sights are reference points that aid in aligning the shooter's eye to the bore of the rifle. Once the bore and the eye are aligned, the bore can be pointed at a desired point of impact. With metallic sights, the shooter focuses on the front sight. The front sight is then positioned properly in the rear sight, keeping the front sight in sharp focus and allowing both the rear sight and the target to be slightly blurry.

Sight alignment differs with the various types of sights. With telescopic sights (scopes), the lenses inside the sight align the sighting device or reticle with the bore. The target and the reticle appear on the same focal plane, so both of them are in sharp focus at the same time. Adjusting the sight setting changes the relationship with the bore, but on most modern scope sights, the reticle remains centered. Receiver or peep sights are aligned almost automatically by the eye. As the front sight is viewed through the rear aperture, the eye tends to center the front bead or post in the aperture. When a front aperture is used, the eye tends to center the inner aperture in the outer (rear) one. Concentration on the front sight is somewhat automatic, since the rear sight is too close to the eye to remain in focus.

Open sights are properly aligned when the front sight is centered in the notch or V-groove. Partridge-style sights center the front blade in the notch and level the top of the blade with the top of the rear sight. Other styles center the bead in the notch or groove in the rear sight. More concentration may be required to focus on the front sight with the multiple images of an open sight and a target.

No matter what type of sight is used, proper sight alignment is critical to accurate shooting. Practicing sight alignment can lead to improved shooting and tighter groups.
Trigger Control

Trigger control simply means learning to press the trigger directly to the rear in a smooth motion with constant pressure and without disturbing the sight alignment or sight picture. While many shooters suggest squeezing the trigger, that idea sometimes prompts shooters to apply pressure with the entire hand. Such pressure almost invariably disturbs the sight alignment. Proper trigger control requires that the only change in hand pressure be the straight-back push of the trigger finger on the trigger. Adjusting the trigger finger placement on the trigger can aid in achieving a straight-back pressure. Pistol shooting demands good trigger control and is excellent practice for good rifle shooting.

Proper trigger control can be demonstrated and practiced with an exercise using an eye dropper. With the eye dropper filled and held between the thumb and the tip of the index (trigger) finger, press gently with the finger to drop several drops, one at a time, on the same "target." Then try by squeezing with the whole hand or moving both the thumb and the finger at the same time. You will see that the first method is more precise. Try holding the entire hand still while moving only the trigger finger. As you overcome the tendency to move the entire hand, your ability to maintain sight alignment will increase.

Range Commands and Procedures

The first rule of range etiquette and safety is that the range officer is in complete and absolute control of the range at all times. Safety is our constant and primary concern, and the range officer's first priority is to maintain range safety. Everyone on or near the range is personally responsible for safety as well. To protect sight and hearing, eye and ear protection is required of all persons on or near the range. In addition, no nonsense, disruptive activity or abusive behavior will be permitted on or near the range. Shooters, particularly beginning shooters, need to concentrate on safety and the fundamentals of proper shooting. Distractions reduce concentration, hinder learning and create potentially dangerous situations. They cannot and will not be permitted. Participants who fail to exercise good judgment and the highest standards of behavior will be removed from the shooting range for the duration of that session. Repeated problems may result in being banned from the entire instruction program.

Three simple and basic rules apply to firearms handling to help keep the operation of the shooting range accident free. First, muzzles will always be kept pointed in a safe direction. They should be held straight up when the rifle is being brought into the range and pointed down-range at all times when it is on the firing line. The shooter (and coach) must watch muzzle direction at all times. Second, the rifle will be kept unloaded with the action open and exposed to view at all times except when it is actually being fired. Range officers or their assistants will inspect every rifle when it is brought onto the range or removed from it. The action should be open at that time for their inspection. Third, the finger will remain off the trigger except when the shooter is in the act of firing, either dry firing or with live ammunition.

If a problem arises while shooters are on the range, a shooter must decide what to do. If any unsafe condition is present down range, the shooter should call "cease fire" immediately. If a malfunction or equipment problem occurs a shooter should raise his or her hand to signal the range officer or an assistant. The rifle must remain pointed down-range at all times. Keeping the rifle pointed down range is particularly important if an ammunition malfunction or misfire occurs. The rifle should remain pointed down range for at least three minutes before the action is opened. Faulty ammunition should be placed in the barrels provided for proper disposal.
We will use range commands consistently, and shooters and coaches are expected to learn them. The following are basic commands, you may add to these as the situation dictates e.g. large groups of shooters, matches, etc. or use the Expanded Range Commands when working with novices, but always use these as a minimum standard.

**BASIC RANGE COMMANDS**

"Shooters to the line" instructs shooters to move to the line with their equipment.

"Load" allows shooters to handle their rifles and load them.

"Commence firing" signifies that live firing may begin.

"Cease firing" signifies that all firing stops and rifles must be unloaded or it signifies an unsafe situation where all firing stops and rifles actions are opened.

**EXPANDED RANGE COMMANDS**

"Shooters (or relay [number] to the line" instructs shooters (or coach-pupil pairs) to move to the line with their equipment. All equipment should be made safe, inspected and grounded at the shooting line. The muzzle must be pointed down range and the action must be open and exposed to view.

"Is the line ready? Please respond by firing point number. "This query demands a response, either positive or negative, from every shooter or coach. After shooters gain more experience and confidence with range procedures, we will switch to a more conventional response. Then only shooters who are not ready will reply. Many shooters signify their readiness with a wave of the hand. Anyone who is not ready at this point should respond with a "not ready."

Once the range officer is satisfied that the line is ready, he or she will declare the range ready. "The range is clear; your may handle your firearms, " or "The preparation period begins now" allows shooters to handle their rifles. The rifles may be picked up and adjusted to the shooter at this command, but they MAY NOT be loaded. Preparing to load the rifle comes after the range officer declares the preparation period at an end. The range officer will state the readiness of the range, then declare it open by stating, "Ready on the right. Ready on the left. Ready on the firing line "This is the final opportunity to indicate that more time is needed.

Mechanical safeties are seldom used by serious target shooters, since the rifle is loaded only in preparation to being fired. To reinforce use of the safety and to add another safety checkpoint to our shooting procedure, we will keep the safety on except when the rifle is ready to fire. The range officer will issue the command "Safeties off" to move the safety to the fire position.

"Commence firing" signifies that live firing may begin. The rifle may now be loaded and fired. In competitions the range officer will usually state the time allowed for the stage just prior to declaring the range open to live firing. Initially, the range officer will issue a series of commands to control actions on the range further. "Load" means the rifle may be loaded and charged if necessary. "Align the sights," means to obtain a proper sight picture. "Obtain a sight picture" means to hold the sights on the target. "Press the trigger;" means to fire a controlled shot at the target. "Follow through," means to hold the sight alignment and sight picture through the shot. These extra commands will be eliminated after the shooters are familiar with the firing sequence.
“Cease fire” may signify either the end of a time period for a stage or the presence of an unsafe condition. It means that all shooting is to stop immediately. Even a shot that is just about to "break" should be held back if it is possible to do so. At the command, all shooting stops, all shooters and coaches repeat the command, out loud and the actions are opened and any live ammunition is removed from the firearms.

“Make your rifles safe” requires you to double-check the rifle to be sure that it is empty and the action is open. Some range officers will then tell you to "Ground your rifles. This means place them on the shooting mat pointing down range with the action open and exposed to view. Just as rifles are the first part of the equipment carried onto the range and checked as they enter, they are removed from the range first at the end of a relay. Rifles should be ready for inspection as they are being taken from the range, just as they were when being carried onto the range.
Rifle Operation

We learned the basic parts of a rifle and how they work in the last session. Each shooter should be completely familiar with the operation of his or her rifle. Study the owner's manual carefully or have someone who understands the rifle demonstrate its features for you.

Please pay close attention to the teen leaders as they demonstrate some basics of rifle operations. The safety is located on the trigger guard, or behind the bolt handle on the receiver, or on the rear of the bolt, or on the receiver tang. Most safeties located on the tang or the receiver, are pushed forward to the fire position. Those mounted on the rear of the bolt are usually rotated to the right to fire. Cross-bolt safeties, found on the trigger guard, come in both right-handed and left-handed versions. They are pushed away from the dominant hand to fire. Study the safety on your rifle, and examine how it operates with the assistance of a teen leader or assistant. The basics of loading and unloading are also extremely important. We will be single loading our projectiles. Each pellet or cartridge is placed in the rear of the chamber and locked into place by moving the bolt forward. In many bolt-action rifles, the bolt is also rotated after it is closed to lock it in place. Practice the procedure without using any ammunition. In the beginning, the "coach" in each coach-pupil pair will be controlling all ammunition.

Muzzle control is critical in all phases of using a firearm. The shooter is responsible to watch where the muzzle is pointing at all times. "Coaches" should reinforce proper muzzle control, stopping the movement of the rifle if necessary. Range staff will watch each firing point in the beginning to support both the coach and the shooter. Air rifles have an additional safety concern. They must be charged with air before they can be fired. The rifles we are using require a single air charge. The operating handle is moved fully forward, then is pulled back and locked in place. Be sure to keep the muzzle pointed in a safe direction throughout the process. Also, keep your fingers clear of the charging lever while it is being moved. On many airguns the charging lever closes by snapping sharply into place. They can give you a nasty pinch if you are not careful.

Coach-pupil Instruction

The coach-pupil method involves pairs of shooters who change roles during the course of instruction. The "coach" reinforces proper technique, learns by instructing and supports the shooter. Coaches watch for compliance with all safety measures. They observe muzzle control and intervene if the muzzle strays from a down-range orientation. Coaches assist the shooter in getting the rifle properly placed on the bench or the shoulder. They control the ammunition and load the rifle in the beginning stages of learning. They also move the safety to the "fire" or "off" position and announce the condition to the shooters. Later, they may assist the shooter with loading. An adult or teen assistant will be available to support each coach-pupil pair.

Dry Firing

Dry firing is a valuable and inexpensive way to practice rifle shooting form. It is simply going through all the motions of shooting without ammunition. The shooter is free from worrying about scores and the noise of live firing, allowing greater concentration on the fundamentals of shooting. Dry firing helps to develop a feel for the trigger. No noise or recoil will disturb the process of developing a smooth trigger squeeze. Faulty trigger control can be detected because the movement is not covered by recoil. The shooter can experiment with finger placement on the trigger to achieve a straight-back pressure. Dry firing also helps the shooter develop consistent form, sight alignment, sight picture and follow through.
Air rifles may be dry fired merely by shooting without loading a pellet. Most air
pneumatic air rifles may be dry fired without causing damage to the rifle. Since
dry firing can severely damage spring-piston air rifles, always check with a
competent authority to determine if the rifle you are using may be dry fired
without damaging it. Rimfire and center-fire rifles may use snap caps or dummy
rounds to cushion the firing pin.

**Dry Firing at Target Backs**

Initial dry firing and live firing will involve target backs rather than regular targets.
Shooting at target backs emphasizes shooting form rather than hit location or
scores. Thus, the blank target is a better learning environment for the shooter. The
shooter should concentrate on proper and consistent sight alignment and good
trigger control. Coaches should watch muzzle control and other safety elements.
They should also help shooters concentrate on focusing on the front sight, trigger
control and following through the shot.

All shooters should start from a supported, bench-rest position. The shooter is
seated squarely to the target behind the bench. The rifle is supported under both
the forend and the grip by sandbags, a cradle, a commercial rifle rest or similar
supporting materials. The shooter's elbows rest on the bench. The dominant-side
hand (shooting hand) holds the grip of the rifle, with the finger along the trigger
guard. The "off" hand lies on the bench, braces the elbow of the shooting hand or
braces the sandbag under the grip. The cheek presses against the comb with the
dominant eye in line with the sights. The sights are moved to the desired point of
impact by moving the rest and the rifle, not by muscling the rifle into position. The
rifle should be stable. For the duration of the dry-firing exercise, the rifles should
be empty or loaded with inert ammunition. No live ammunition should be present.

The first "shot" for each shooter will be fired on command. With the first relay on
the line, have the shooter get into a good bench-rest position with the aid of the
coach. After a few moments, determine the shooters' status by asking "Is the line
ready? Respond by firing point number, please." Each shooter or coach should
reply by stating the number of their firing point and either "ready" or "not ready."
Query any non-responders directly by number or name. Declare the range ready
and have coaches assist the shooters into firing position and with positioning the
rifle. Once they are in position and settled (adults or teen assistants may need to
help here), have the shooters check their safeties by the command "safeties on."
On the command "coaches, cock your rifles" coaches should cock their rifles and
charge them with air if necessary. The coach switches the safety to "fire" on the
command "safeties off." Shooters should get into position again and "align the
sights." Caution shooters to align the sights properly and carefully. The "center the
sights on the target back" command may require adjusting the rifle or rest
positioning. "Keep the front sight in focus, press the trigger and follow through"
should result in a ragged series of reports or clicks. Next, issue the command
"safeties on." Coaches should verify the safety position.

Then command "make your rifles safe." Shooters should open the action,
leaving the muzzle pointed down range and the rifle supported in the bench-rest
position. This sequence should be repeated several times before the shooter and
coach switch roles. Repeat the dry firing exercise several times with each
shooter. Watch for lack of attention, signs of boredom or confusion.
Summary

Proper sight alignment involves focusing the eyes on the front sight and centering it in the rear aperture, or in another pattern appropriate to the type of sight. Aperture and telescopic sights are preferred for this stage of instruction. Proper trigger control involves pressing the trigger until it "breaks," releasing the sear or firing the rifle without disturbing the sight alignment. That undisturbed sight alignment should be maintained during and after the firing with a solid follow through for the shot. We applied these principles by dry firing at target backs from a bench-rest position.

In addition to these mechanics, we have learned and practiced safe range management and operation procedures. Those procedures and commands have been practiced in a dry firing context. You have learned that dry firing is an excellent way to practice the fundamentals of shooting.

Remember that we will be shooting live ammunition in our next session. No one will be allowed to shoot without proper eye and ear protection, so be sure to bring it with you to the meeting.

Summary Activities

1. Have participants discuss the main points of the session (self-control, sight alignment and trigger control) and the reasons that they are important to good shooting.
2. Have participants record what they learned about sight alignment, trigger control and range operations in their shooting journal or notebook.
3. Have a more experienced shooter discuss why these basic elements of shooting are important to them and how they practice them. Emphasize mental control and dry firing.

Sharing and Exhibit Ideas

1. Exhibit your shooting journal or notebook, showing the learning steps you have recorded during this series of lessons.
2. Develop a demonstration of a sight alignment exercise, and explain why sight alignment is important to good shooting.
3. Make a set of safety posters or signs for the ready area at the entrance of the shooting range, reminding shooters of their responsibilities on the range.
4. Build a shooting bench.
5. Make a set of sandbags to be used in bench-rest shooting.
6. Discuss shooting safety and proper shooting form with one or more friends.
Basic Rifle Lesson 3

Shooting for Groups on Target Backs

Ronald A. Howard Jr., William F. Stevens and John Kvasnicka*

Objectives
Participating youth and adults will:
1. Demonstrate sound rifle shooting principles using live ammunition.
2. Effectively shoot groups using a center-of-mass hold on a blank target.
3. Practice safe range and shooting procedures.
4. Have fun while learning.

Roles for Teen and Junior Leaders
- Review rifle orientation.
- Demonstrate proper rifle shooting form.
- Demonstrate range procedures and commands.
- Assist coaches in helping shooters with problems.
- Tutor shooters with particular difficulties.
- Act as assistant range officers.
- Assist with trigger control exercise.

Parental Involvement
- See Roles for Teen and Junior Leaders above –
- Coordinate or provide transportation to the range.
- Coordinate or provide refreshments after the session.
- Assist instructors with control of each firing point
- Act as assistant range officers or range officers.
- Assist youngsters with particular difficulties by providing personal attention to their needs.

Best Time to Teach
Any time of year, but prior to shooting at any scoring target

Best Location
Any safe shooting range

Time Required
Approximately 1 hour (Repeat as many times as necessary)

Materials/Equipment
- rifles
- appropriate ammunition
- adequate backstop
- blank paper or rifle targets
- eye and ear protection
- shooting bench with pad
- bench or chair for each shooter
- sandbags or other rifle rests
- tape or other target mounting materials
- pen, pencil or fine felt- pen
- eye droppers

References
Four-in-One Shooting Instruction DVD Basic Rifle Shooting - A Better Way. Contact your state coordinator or Federal Cartridge Co., Anoka, MN.

*4-H and Youth Development Specialist, Texas Agricultural Extension Service; Conservation Affairs Manager for Federal Cartridge Company, Anoka, MN; and Executive Director, Minnesota Deer Hunters Association.
Presentation

I. Review
   A. Safety rules
   B. Eye and ear protection
   C. Sight alignment
   D. Trigger control
   E. Loading and unloading procedure
   F. Range commands
   G. Shooting procedures

II. Repeat and review dry firing
   A. Shoot from bench-rest position
      1. Rifle supported on sandbags or other rest
      2. Shooter seated and supported at bench
      3. Blank target
   B. Repeat dry-firing exercise
      1. Press or squeeze trigger to reestablish feel
      2. Align sights, center on target back and dry fire
      3. Repeat several times with each coach-pupil pair

III. Live firing at target backs
   A. Define live firing
      1. Actually firing a projectile
      2. Point of impact evident
      3. Indicates where muzzle was pointed
   B. Ammunition being used
      1. Discuss type
         • rimfire
         • center-fire
         • pellet
      2. Coaches control ammunition
   C. Shooting for groups
      1. Objective is to shoot groups
      2. How to shoot groups
         • proper sight alignment
         • good trigger control

Teaching Outline

Application

ASK participants to REVIEW the elements of safe, controlled and consistent shooting. STRESS main points, adding any essential ones to their review.

DRY FIRE to help shooters review process of firing a shot, stressing sight alignment and trigger control.

WATCH constantly for form, safety and fatigue.

Use rifles that will be shot in this session to DEMONSTRATE all procedures.

STRESS importance of shooting groups, not group location.
• consistent hold on target center
3. Coaches and assistants watch form and safety
• muzzle control
• focus on front sight
• trigger control

D. Demonstrate proper loading procedures
1. Refer to owner's manual
2. Reinforce safety rules

E. Discuss live firing procedure
1. Muzzle down range and finger off trigger
2. Safety on
3. Load rifle (charge first if needed)
   • may be done by coach
   • coach moves safety to "fire"
     - state rifle is ready to fire
     - wait for "thank you" to release control of rifle
4. Align sights
   • focus on front sight
   • front sight aligned with rear sight
   • hold aligned sights on center of target back
5. Squeeze trigger
   • focus on front sight
   • maintain sight alignment
   • hold until projectile hits backstop
6. Make rifle safe
   • safety on
   • muzzle down range
   • action open, empty and exposed to view
   • rifle firmly in bench position

IV. Live firing at target backs
A. Maintain bench-rest position
1. Coaches reinforce proper position
2. Review position if needed
B. Live firing on commands
1. Use expanded range commands and shooting procedures
2. Repeat sequence several times

REVIEW these elements once more.

MAINTAIN constant and immediate control over every firing point with adult or experienced teen leader.

USE coach-pupil pair made up of teens or parents to DEMONSTRATE loading and unloading.

DEMONESTRATE a proper live firing process with a group of adults or teens as it is being explained. Have shooters OBSERVE at each firing point.

REINFORCE need for communication and control over rifle.

Coaches or instructors CONTROL all live ammunition.
ASSIST any shooter having problems, taking all needed time.
DO NOT over coach or allow shooters to fire too many shots without break. Excessive shooting or too many things to think about slows learning. AVOID FATIGUE and USE breaks for evaluation and instruction.
3. Allow shooters to fire several shots on their own
4. Reverse roles and repeat

V. Evaluating Groups
A. Review shooting for groups
   1. Consistency
   2. Sight alignment
   3. Trigger control
   4. Center-of-mass hold
B. Fire a carefully held, 5-shot group
   1. Small groups (nickel to dime size)
      - Adequate mastery of basics
      - Ready to move on to target faces
      - Location not important
   2. Large or inconsistent groups
      - Review basics
      - Continue using bench-rest position
      - Keep pressure OFF shooter by staying with target backs
C. Allow shooters to proceed as they are ready

VI. Summary
A. Review sight alignment
B. Review trigger control
C. Review dry-firing and live-firing procedures
D. Respond to any questions
E. Encourage use of shooting journal

ASK what factors control size of groups being fired? STRESS factors outlined.

Have each shooter FIRE a 5-shot string and ANALYZE each one for group size. DO NOT worry about group location or altering sight settings.

Have shooters with large groups REVIEW the keys to good shooting and FIRE another string from supported position.
If necessary, REPEAT the triangulation and trigger control exercises.
Take every precaution to KEEP PRESSURE OFF shooter.
ISOLATE them for review if needed to reduce pressure.

STOP shooting session before fatigue becomes a factor.
Let shooters LEAD review of lesson by asking leading questions.

BE SURE to answer any questions and prepare them for next shooting session.
Lesson Narrative

Rifle shooting involves only a few factors that are important to accurate and safe shooting. Self-control is required for both purposes. That includes the ability to concentrate on the task at hand as well as complete awareness of potential dangers. There is no room for any foolishness or horse-play.

What are the three primary rules of safe shooting on the range? The most important is keeping the muzzle pointed in a safe direction at all times. In addition, keep the action open, the firearm empty and the open action exposed to view at all times. Finally, never put your finger on the trigger until in the act of shooting.

Sight alignment is lining up the eye with the bore by placing the front and rear sights in a consistent visual relationship. Proper sight alignment with these receiver sights involves centering the front sight precisely in the rear aperture. The front sight remains in focus throughout the shooting process.

Trigger control is firing the rifle without changing the sight alignment during the process. The trigger is pressed straight back until it breaks" or releases the sear to fire the rifle. During and after the shot the shooter tries to keep the sights aligned and on target.

One of the ways to ensure safety on the range is to have one person in charge. The range officer is in absolute control of the range. We use a standard set of commands to control actions on the range. That helps us avoid confusion.

The most important command issued is "cease fire!" It brings all shooting to a complete and immediate halt. All other actions on the range follow the direction of the range officer as well. The commands we will be using include the following.

"Relay [number] or shooters to the line."

Shooter-coach pairs move to the firing line with their equipment and make all equipment safe.

"Is the line ready? Respond by firing point number, please."

Shooter or coach must respond either "ready" or "not ready."

"Pick up your rifles."

Shooters may pick up their rifles, verify that they are safe, check to be sure the safety is on and get into shooting position without loading the rifle.

"Load your rifle."

The coach will load and charge the rifle and return it to the shooter using the proper protocols.

"Safeties off."

The coach will switch the safety to the "fire" position.
"Assume a comfortable firing position."
The coach will assist the shooter into a sound bench-rest position.

"Align your sights."
Shooters will focus on the front sight and align the rear sight with it.

"Center your sights on the target back."
Shooters will bring the aligned sights to bear on the center of the blank target.

"Press or squeeze the trigger."
Shooters will fire their rifles, keeping the sights aligned throughout the shooting sequence.

"Make your rifle safe."
Shooters will open the action, clear any ammunition, place the safety in the "safe" position and ground the rifle on the bench with the action up and the muzzle pointing down range.

Dry Firing Review

Prior to live firing, let's review the dry-firing process. The first relay of coach-pupil pairs move to the line. Once the line is ready, each shooter should cock the rifle, point it down range and squeeze the trigger to re-establish the trigger feel. Next, dry fire a round or two with the sights aligned on the backstop. Then, align the sights, center them on the blank target and dry fire another round or two. Reverse roles so both members of the team get a chance to warm up by dry firing.

Live Firing at Target Backs

Live firing involves firing a projectile at a target. The projectile leaves evidence of the point of impact, which allows the shooter to see where the bore was pointed when the rifle was fired. If the sights were properly aligned, the eye and the bore should have been looking at the same point of impact. We are not concerned with the point of impact as much as with the consistency (precision) of that point of impact. The size of the group gives evidence of consistency in form and hold. As long as it is on the paper, the location is not important.

Each action type has a specific loading procedure. We will be using bolt action, single stroke, pneumatic air rifles for this exercise. [Instructor note: modify this to fit the type of rifle you will be using.] The rifle is loaded by pulling the bolt handle back toward the butt of the rifle. That cocks the rifle and opens the action to permit a pellet to be loaded through the loading port. Place the trigger safety in the “on” position by pushing the safety button from the left to right so that no red is showing. The rifle is charged by grasping the charging lever and moving it forward as far as it will go. With the fingers out of the way, the lever is then drawn back and locked in place. The lever may close with a snap, so avoid getting your fingers pinched. The pellet is inserted in the port with its skirt (the hollow base portion) facing toward the rear and the closed end toward the muzzle. Pushing bolt forward locks the action.

Does anyone have any questions on how to cock, load or charge the rifle?

Follow these teen leaders as they demonstrate the five firing sequence. Note that they follow the range officer's commands and keep the muzzle under control at all times. Once the range officer has declared the range hot or ready for live firing, the shooter opens the bolt and moves the safety to the “on” position. Then the rifle is charged with air by making one complete stroke with the charging lever. Throughout this operation, note that the muzzle is pointing down range and the
trigger finger is kept off the trigger. The shooter then takes a comfortable bench-rest position. The rifle is now loaded and the bolt is closed. The safety is pushed to the "fire" position. Then the sights are aligned and held on the center of the target back in front of that firing point. The shooter squeezes the trigger until the rifle fires, keeping the sights aligned and centered on the target back. Note that the rifle held its position until after the pellet hit the backstop. Then the rifle is made safe by opening the action and placing it, action up, on the bench with the muzzle pointing toward the backstop.

**Live Firing at Target Backs**

You will note that none of the targets on the backstops have any bullseyes on them. You are shooting at the backs of the targets to check sight alignment and trigger control. If both are being used properly, and you are holding the aligned system on the middle of the target back, you should be able to shoot relatively small groups. The objective is to shoot groups. We are trying to avoid confusion by keeping you from worrying about your score.

Coaches, remember that your job is to watch for proper shooting form and safety at all times. Remember that we must always keep the muzzle pointed down range. The shooter needs to focus on the front sight, align the sights and control the trigger to shoot good groups. We will shoot the first shot in each relay on command.

"Shooters to the line."
"Is the line ready? Respond by firing point number, please."
"Pick up your rifles."
"Safeties on."
"Coaches, charge the rifles with air and load."
"Hand the rifles to your shooters."
"Safeties off."
"Focus on the front sight and align the sights."
"Center the sights on the target back, keeping the front sight in focus."
"Squeeze the trigger, keeping the sights aligned and centered on the target back until the pellet hits the backstop."
"Make your rifles safe by putting the safety on, opening the action and placing the rifle on the bench with the action exposed to view."
"Coaches, you may continue to load and let your shooter fire several more rounds."

Once the first shooter in the team has had a chance to fire three to ten rounds, the team members should reverse roles and repeat the entire sequence. If other relays are waiting, have this relay evaluate what they learned and review shooting procedures while the others shoot. If no other relay is waiting, continue the firing process, reversing roles after every five to ten shots. Watch for fatigue and try to take breaks before it becomes a problem.

**Shooting a Group for Analysis**

Now that we have all had a chance to shoot at a target back, let's put up fresh targets and shoot a series of five shots to see how tight a group you can shoot. Remember to keep the same point of aim on the center of the target back regardless of where the shots are hitting. The size of the group will depend upon your consistency. Consistent sight alignment with a consistent trigger squeeze and a consistent sight picture on the target back will give you the smallest possible group. Go ahead and shoot five shots at your target, trying to do your best.
Retrieve your targets, and bring them to your instructor. Small groups indicate that you have mastered the basics of firing a shot adequately to go on to the next step. Instructors, if necessary use the triangulation exercise to evaluate sight alignment or the trigger control exercise with your shooters who are shooting large groups. (An explanation of how to do the triangulation exercise can be found in the narrative of Lesson 4 Teaching Sight Picture.) Remember that the location of the group is not important. Only its size is important right now.

Summary

What have we learned today? It is much easier to hit the same hole every time when we dry fire than when we are actually shooting projectiles down range. Tight groups are the result of consistent sight alignment, consistent trigger control and a consistent hold on the target. These few fundamentals can help you shoot small groups. Small groups make it possible to adjust the sights so the sights and the bore are pointed at the same location. Be sure to write the things you have learned in your shooting journal.

Summary Activities

1. Have shooters compare the first groups they fired with the last one. Discuss the reasons they feel are important in causing those differences.
2. Use the triangulation exercise to evaluate sight alignment.
3. Have shooters write what they learned in this lesson in their shooting journal or notebook.

Sharing and Exhibit Ideas

1. Make a step-by-step poster or series of posters depicting the shooting process to be used in teaching.
2. Display your shooting journal with a series of targets, group sizes or other indications of changes in shooting ability.
3. Make a rifle rest that can be used in the bench-rest position.
4. Make a shooting bench that can be used in bench-rest shooting.
Teaching Sight Picture

Ronald A. Howard Jr., William F. Stevens, John Kvasnicka and Marilyn Bergum*

Objectives
Participating youth and adults will:
1. Understand the concept of sight picture.
2. Demonstrate the ability to shoot groups by using consistent and proper bench-rest shooting position.
3. Demonstrate ability to adjust sights properly to move the point of impact to a desired location.
4. Understand the relationship between sight alignment and sight picture.
5. Understand and use triangulation.
6. Have fun while learning.

Roles for Teen and Junior Leaders
- Demonstrate sight adjustment.
- Assist shooters with sight adjustment.
- Demonstrate sight picture and illustrate need for consistency.
- Assist with range management.
- Act as assistant instructors or range officers.
- Teach portions of the lesson.
- Assist shooters with triangulation exercise.

Parental Involvement
- See Roles for Teen and Junior Leaders above
- Provide or arrange for transportation.
- Provide or arrange for refreshments.
- Interpret targets and aid with sight adjustment.
- Score targets.
- Assist with fun shooting.

Best Time to Teach
Any time of year, but after shooting groups on target backs

Best Location
Any safe shooting area

Time Required
Approximately 1 hour

Materials/Equipment
- rifles
- shooting bench with pad and seat
- eye and ear protection
- ammunition
- targets
- safe backstop
- sandbags
- dummy or inert ammunition
- manufacturers’ ammunition and ballistics catalogs
- visual aids for sight picture (models, diagrams or posters)
- open bolt indicators

References
The Basics of Rifle Shooting.
NRA Junior Rifle Shooting.
Four-in-One Shooting Instruction DVD Basic Rifle Shooting - A Better Way. Contact your state coordinator or Federal Cartridge Co. Anoka, MN.

* 4-H and Youth Development Specialist, Texas Agricultural Extension Service; Conservation Affairs Manager for Federal Cartridge Company, Anoka, MN; Executive Director, Minnesota Deer Hunters Association; and National Rifle Association Field Representative to Minnesota, North Dakota and South Dakota
Teaching Outline

Presentation

I. Review
A. Safety
B. Eye and ear protection
C. Range commands and control
D. Shooting procedures
E. Dry fire
F. Dry fire at target backs

II. Review live firing at target backs
A. Refreshing the basics
   1. Sight alignment
   2. Trigger control
   3. Consistency for groups
B. Review of basic shooting position

III. Learning sight picture
A. Define sight picture
   1. Aligned sights in relation to a target
   2. Elements of proper sight picture
      • focus on front sight
      • rear sight and target slightly blurred
B. Variations in sight picture
   1. Types of sight picture
      • center-of-mass
         - sights aligned with the intended point of impact
      • six o' clock hold
         - entire bulls eye on top of the front sight
         - "pumpkin on a post"
      • both acceptable
      • stick with one method
   2. Sight pictures with different types of sights
      • telescopic sight
         - reticle and target in focus
         - cross-hair, top of post or dot on intended point of impact

Application

Use QUESTIONS to have young people SUMMARIZE previous lessons.
REINFORCE all major points of emphasis.

SHOOT at least one series of shots for each shooter using target backs to relieve trigger feel and sight alignment.

USE sighting device or model to illustrate sight picture and variations with different types of sights.

SHOW difference between center-of-mass hold and six o'clock hold.
DISCUSS advantages and drawbacks of both types. STRESS sticking with one type of hold once you have tried them.

USE models or illustrations of various reticles to SHOW relationship of reticle to target.
USE illustrations or models to SHOW sight pictures with receiver sights.
- peep or aperture rear sight
  - post or bead front sight
    - center-of-mass hold
  - aperture front sight
    - center-of-mass hold
- open rear sight
  - center-of-mass hold
  - six o’clock hold

IV. Live firing at target faces

A. Maintain proper bench rest position
B. Live fire by commands
   1. Use expanded range commands
   2. Reinforce proper shooting procedure
C. Fire three to five shots
D. Reverse roles and repeat exercise
E. Repeat the exercise two or three times
   1. Do not adjust sights
   2. Keep constant sight picture
   3. Shoot for groups

V. Developing consistent sight pictures

A. Triangulation exercise
   1. Set up rifle in box, cradle or vise
   2. Adjust rifle position to target
   3. Tape rifle and supports in place so they cannot be moved
   4. Shooter aligns sights
   5. Assistant moves “bull” until “shooter” calls the shot
      - shooter directs movement until bull is in position
      - assistant marks through center of bull with pen or fine marker
      - repeat the procedure at least three times with each shooter

Move back to range and have each shooter FIRE several groups at bulls eye targets, taking turns and being careful to AVOID fatigue.

WATCH for development of tight groups, but DO NOT MOVE sights.

ILLUSTRATE properly aligned sights and sight pictures once more.

NOTE that kids who have difficulty attaining good sight pictures should REVIEW the basics of sight alignment.

PROVIDE a non-threatening site for them to practice until they obtain groups that are about dime-sized. Poor vision may cause problems for some young people who are not aware of their visual difficulty.
6. Size of triangle indicates consistency (precision) in sight picture

VI. Sight adjustment
A. Objective is to bring point of aim and point of impact together
B. Sights moved into alignment with the bore
   1. Group center as reference point for sight adjustment
      • average point of impact
      • considers variation in hold and rifle performance
   2. Adjustment in two planes
      • windage - horizontal location adjustment
      • elevation - vertical location adjustment
C. Methods of adjusting sights
   1. General rule for sight adjustment
      • move rear sight in the direction you want the point of impact to move
        - if group must be moved to the right, move the sight to the right
        - if group is low, raise the rear sight
      • move front sight toward the point of impact
        - if group is to the left, move the front sight to the left
        - if group is low, lower the front sight
   2. Telescopic sights or receiver sights with micrometer adjustments are easiest to use
      • markings or click stops at relatively even intervals
        - check manufacturer's instructions
        - note changes for your rifle and sights
      • increments of change expressed in minutes of angle (MOA)
        - 1 MOA
          ◦ 1 inch at 100 yards
          ◦ 1/2 inch at 50 yards

USE illustrations of groups on targets, or use large targets with stick on dots, to show how to adjust sights. If a good shooter is available, try DEMONSTRATING impact movement with sight adjustment.

DEMONSTRATE sight adjustment on rifles being used. DISCUSS other types of sight adjustment ONLY if asked or they are being used in course.

SHOW minute of angle in illustration to show that changes vary with distance from muzzle.
• 1/6 inch at 50 feet
  - many sights as fine as
    1/4 MOA per mark or
    click
3. Adjusting telescopic or peep
   (receiver) sights with
   micrometer knobs
   • adjustment directions
     marked on knobs or dials
   • fire three to five shots using
     the same sight picture
   • measure vertical and
     horizontal changes needed
   • estimate number of clicks
   • move sight in direction you
     want point of impact to
     move
   • record the number of marks
     or clicks the sight was
     moved
   • fire three to five more shots
     using the same sight picture
   • check location of group
     center, note amount of
     change per click or mark
     and correct by trial and error
D. Adjusting open sights
1. May use screws, wedges or a
   punch
2. Basic procedure similar to
   telescopic or micrometer
   adjusted peep sights
   • fire a three- to five-shot
     group
   • use center of group as a
     reference point
   • move rear sight in the
     direction hits must move and
     record the sight change
   • fire another three- to five-
     shot group using the same
     sight picture
   • record distance moved for
     amount sight was moved
   • estimate sight movement
     needed and move sight
   • refine location by trial and
     error
3. Front sight adjustment is in
   opposite direction - move
   toward existing point of
   impact

Have teen or junior leaders **HELP** pairs of shooters with their first
sight adjustment.

**STRESS** importance of recording amount of change each click at
different ranges in shooting journal.

**EMPHASIZE** staying with process until satisfied.
VII. Summary
   A. Combining sight alignment with target for sight picture
   B. Repeating the basics of firing a shot
   C. Adjusting the sights for accuracy

**REVIEW** the main topics covered in this lesson, letting the young people lead the session by asking questions.
Lesson Narrative

Before we get started with this lesson, let's review material we have covered on safety and marksmanship. Each shooter is responsible to all others on the range for his or her actions. The shooter alone controls the direction the rifle is pointed. That makes each shooter responsible for obeying all range safety and procedure commands and abiding by the protocols of good sportsmanship. Firearms are inspected by both the shooter and the range officer to assure safety. However, the shooters must practice self-control, muzzle control and trigger control at all times. We follow three basic rules to assure others on the fine that each rifle is safe. The muzzle remains pointed in a safe direction at all times. The rifle remains empty with the action open and exposed to view except when it is being fired. The finger is kept off the trigger except when in the act of shooting. In addition to those firearms handling rules, each person on the range must have adequate eye and ear protection when live firing takes place.

The fundamentals of marksmanship have been established as well. We have learned proper sight alignment and the reasons for using consistent sight alignment. Trigger control is exercised to fire the rifle without disturbing the sight alignment. Follow through is critical to good shooting form. Finally, we learned to assume a stable bench rest shooting position. We practiced loading and unloading the rifles properly, and used both dry-firing and five-firing techniques to practice shooting on blank targets or target backs.

Join your partners, get your equipment and move to the line. Remember to keep the muzzles pointed in a safe direction with the actions open and the rifles empty. The range officer will check each one on the way to the firing fine. Coaches, put your rifles in the racks until you change roles. Once your rifles have been grounded, hang a target with the back facing the shooter. On command, shoot a five-shot group at the target back, being careful to use proper shooting form as you fire your group. After the first relay fires, we will clear the fine, reverse roles and let the second relay fire their refresher shots.

Sight Picture

A sight picture is a properly aligned set of sights in relation to a target. Proper sight alignment is essential for developing a sight picture. Throughout the sighting sequence, the eye should remain focused on the front sight. The rear sight and target will both be slightly out of focus. Once the sights are properly aligned, they are moved as a unit into proper position relative to the target.

Two basic types of sight pictures are used in precision shooting, the center-of-mass hold and the six o'clock hold. With the center-of-mass hold, the aligned sights are centered on the intended point of impact. The bullet should strike precisely at the top of the post, the
center of the aperture, or the center of the telescopic sight's reticle. With the six o'clock hold, the entire bull is centered on the top of the front sight. This "pumpkin on a post" sight picture is considered somewhat more precise with a bead or post front sight. Many shooters prefer to see just a hair's breadth of lighter colored material between the top of the sight and the bottom of the bull. They feel it helps to keep them from drifting up into the bull slightly.

Both types of sight pictures have advantages and disadvantages. The six o'clock hold gives a somewhat more precise aiming point on a target. The exact location of the bull relative to the sight is easy to see, and the target is not obscured by the sights. In field shooting, no bull is present; and it may not be clear where to hold on the game animal relative to the top of the sight. The center-of-mass hold allows easier positioning of the sight on the game animal or target. In some cases a large portion of the target is obscured by the sight while aiming. In field shooting, however, the point of impact on the animal is fairly clear and evident. Both types of hold or sight pictures are acceptable. Try them. See which one you prefer (which one fits your purposes and gives you better results) and stick with it. NEVER change sight pictures during a series of shots being fired as a group.

Sight pictures differ slightly with different types of sights. With telescopic sights, the optics cause both the reticle and the target to appear on the same plane. That leaves both of them in sharp focus. The cross-hair, top of the post or dot is placed on the intended point of impact. With receiver sights (peep or aperture rear sights), a front post or bead is held either on the center-of-mass (the intended point of impact) or at the bottom of the bull (six o'clock hold). With an aperture front sight, the target is centered in the front aperture, just as the front aperture is centered in the rear one. With open rear sights, most shooters prefer a six o'clock hold; but a center of mass hold is also acceptable. The main thing to remember is to stick with one type of sight picture once you have decided which one gives you the best results.

Shooting at Target Faces

Now let's return to the shooting line. First relay to the line. Assume a bench-rest shooting position. Is the line ready? Respond by firing point number, please. The line is ready. Shooters, verify that your rifles are empty, leave the actions open and check to be sure the safety is on. Coaches, verify the safety of each rifle. Charge the rifle with air if needed and load. Coaches may assist with this operation. Align the sights properly. Remember to keep your eye focused on the front sight and to position the front sight in proper relation to the rear sight. Obtain the desired sight picture. Move the rifle rest or sandbags if necessary to obtain the sight picture. Switch the safety to the "fire" position. Squeeze the trigger, keeping the sights aligned and the sight picture stable. Hold the sight picture until the bullet or pellet strikes the backstop. Move the safety to the "on" or "safe" position. Open the action and make the rifle safe, keeping the muzzle pointed down range. You may fire three to five more shots. Remember to keep the same sight picture for each shot.
Cease fire. Open all actions and make your rifles safe. Ground your rifles after they have been made safe and step back one step from the bench. Change roles within the coach-pupil team and repeat the entire exercise. Remember that we will fire the first shot on commands.

This live firing exercise should be repeated several times without adjusting the sights (as long as the shots are printing somewhere on the target face). The object is to have each shooter fire a relatively small group that can be used as a foundation for sight adjustment.

**Triangulation Exercise**

The objective of this exercise is to check the precision or consistency of the shooters sight alignment and to develop a proper sight picture. Each rifle has been made safe, with the bolt removed and an open bolt indicator installed, and adjusted in the rest so that it points at a blank sheet of paper. Without touching or moving the rifle’s supports, the shooter should align the sights. Then he or she directs the range assistant to move the “bull” until it forms a proper sight picture with the aligned sights. The assistant will mark the location through a tiny hole in the bull. Repeat the process at least three times. The size of the triangle or group indicates the degree of precision used in aligning the sights and obtaining a consistent sight picture. Sight alignment has a much greater impact on the size of the group than does sight picture. Shooters experiencing difficulties with sight alignment and sight picture should participate in this exercise with a range assistant as needed.

**Sight Adjustment**

The sights align the eye with the bore of the rifle. If the sights are not aligned with the bore, the point of impact does not match the point of aim. The point of aim must be moved to coincide with the point of impact. In other words, the sight must be aligned with the bore. The center of a group of shots fired with the same sight setting and the same sight picture is used as a reference point in adjusting the sights. That takes into account the variation in sight alignment, sight picture and in the rifle itself.

The sights are adjusted in two planes. The horizontal (right and left) adjustment is known as **windage**. The vertical (up and down) adjustment is called **elevation**. Although it seems to be moving in the wrong direction, the basic rule in sight adjustment is to move the rear sight in the direction you want the point of impact to move.

Sights are adjusted in several different ways. Telescopic sights and receiver sights with micrometer adjustment have windage and elevation adjustment knobs. The knobs may have positive click stops or lines used as a reference in sight adjustment. The approximate value of each mark or click should be listed in the instruction manual with the sights, but a better value can be determined by field testing. Every time you adjust the sights, you should note how much movement of the point of impact you got for each click or line of adjustment in the sights. Remember, the adjustments are in minutes of angle. That means that they will change in absolute value with changing distance. One minute
of angle (MOA) equals one inch at 100 yards or approximately 28 mm at 100 meters. A one MOA adjustment at 50 yards would only move the point of impact 1/2 inch. At 50 feet that movement would only be about 1/6 inch. Since many sights have divisions that allow adjustments as fine as ¼ or 1/8 MOA, the shooter can make extremely small corrections in sight settings when needed.

The general procedure for adjusting sights or sighting in a rifle involves repetition in a trial and error process. First, fire a three- to five-shot group using the same sight setting and sight picture. Measure the vertical and horizontal distances from the center of the group to the point of aim or intended point of impact. Estimate the number of clicks or lines that the sights will need to be moved in each direction to reach that desired point. Move the sights and record the amount and direction they were moved. DO NOT forget this step. It is very important both now and in the future. Fire a second group (three to five shots) using the same sight picture. Note the new location of the group center. Using the amount the sight was moved and the distance the hits were moved, calculate how much more the sights need to be moved and in which directions. Repeat the process of adjusting the sights and shooting groups to verify their settings until the group is centered on the intended point of impact. Stay with it until you are satisfied.

Some open rear sights must be adjusted with uncalibrated screws or wedges. Others may be moved only by drifting them into a new location with a punch. Some primitive sights were adjusted by means of a small file. The principles are the same, but the precision of the adjustments may be a bit crude.

Very few rifles require adjustment of the front sight. If front sight adjustment is necessary, the sight should be moved toward the existing point of impact. Archers, who use an adjustable front sight, refer to this as “chasing the hits with the sight.”

**Adjusting the Sights on Your Rifle**

Let’s apply this information on sight adjustment to the sights on the rifles you are using. Use the groups you have shot earlier to determine the direction and the amount you should move your sights. Work as a coach-shooter pair on the adjustments, and discuss the adjustments needed with a teen leader or an adult range assistant. Make the sight adjustment, keeping the muzzle of a safe rifle pointed down range. [Use standard range commands to control the range throughout this exercise.] Once you have finished adjusting the sights on your rifle, switch roles with your partner and assist them with the process.

**Summary**

This lesson taught us how to combine sight alignment with the target for a proper sight picture. We reviewed the process of firing a shot, then fired groups on a standard target, and learned how to adjust the sights for accurate shot placement. Next session we will fire a short match from the bench-rest position and learn how to score targets.
Summary Activities

1. Have each shooter evaluate a group and estimate how many clicks they would need to move their sights to adjust the point of impact to the center of the bull.

2. Have each shooter record the sight adjustments they made and the distance the point of impact moved for that adjustment in their shooting journal. Help them to figure out how large the movements would have been at a different distance.

Sharing and Exhibit Ideas

1. Shoot a series of groups, moving the sights a set number of units with each group. Note how much change in the point of impact results from each unit of change in the sight setting.

2. Demonstrate how to adjust the sights on a rifle, using a series of targets to show how the adjustments moved the point of impact.

3. Make a model to illustrate how sight adjustments are made and how they correct the point of aim to the point of impact.

4. Share what you have learned about sight picture and sight adjustment with an interested adult.
Shooting for Scores and Scoring Targets

Ronald A. Howard Jr., William F. Stevens and John Kvasnicka*

Objectives
Participating youth and adults will:
1. Demonstrate proper sight adjustment on their rifles.
2. Fire a modified ten-shot match from the bench-rest position.
3. Practice scoring targets.
4. Have fun while learning.

Roles for Teen and Junior Leaders
- Review sight adjustment.
- Review range safety.
- Act as assistant range officers.
- Demonstrate proper use of scoring gauges.
- Assist with or verify scoring.
- Assist any shooter or coach having difficulties.

Parental Involvement
- See Roles for Teen and Junior Leaders above.
- Act as statistical officers for the shoot.
- Provide or arrange for shoot trophies or prizes.
- Prepare targets for the match.
- Arrange for or provide transportation.
- Arrange for or provide refreshments.
- Plan for a fun shoot.

Best Time to Teach
Any time of year, but before teaching positions other than the bench-rest position

Best Location
Any safe shooting range with a bench

Time Required
About 1 hour (repeat as needed)

Materials/Equipment
- rifles
- ammunition
- eye and ear protection
- standard targets
- bullet blocks
- sandbags or other rifle rests
- shooting benches with pads
- benches or chairs for shooters
- appropriate target hanging materials
- targets (AR5/10 or A17) with backer board for demonstration
- appropriate inward and outward scoring gauges
- pencils or pens
- pads or scoring sheets
- fired targets for scoring practice
- open bolt indicators

References
NRA Junior Rifle Shooting.
The NRA Junior Rifle Handbook.
The Basics of Rifle Shooting.
NRA Smallbore Rifle Rule Book (or other appropriate rule book).
National Rifle Association, Washington, DC.

* 4-H and Youth Development Specialist, Texas Agricultural Extension Service; Conservation Affairs Manager for Federal Cartridge Company, Anoka, MN; and Executive Director, Minnesota Deer Hunters Association.
# Teaching Outline

## Presentation

### I. Review
- **A. Safety rules**
- **B. Eye and ear protection**
- **C. Sight alignment**
- **D. Sight picture**
- **E. Trigger control**
- **F. Range commands**
- **G. Shooting procedures**
- **H. Sight adjustment**

### II. Reviewing sight picture and sight adjustment from the bench
- **A. Dry fire several “shots”**
  1. Use expanded range commands
  2. Use standard target
  3. Reinforce sight alignment, sight picture and trigger control
- **B. Fire a three- to five-shot group**
  1. Maintain bench-rest position
  2. Maintain consistent sight picture
- **C. Adjust sights to center group on sighting bull**
  1. As many shots as needed
  2. Help any shooter having difficulty
- **D. Reverse roles and repeat sequence**

### III. Shooting for score
- **A. Replace sighter targets**
- **B. Note purpose of central bulls**
  1. Sighter shots
  2. No limit on sighters
  3. Time limit for match
- **C. One shot each on record bull**
  1. Importance of a system
  2. Use of a loading block
  3. Observation by “coach”
- **D. Replace targets, switch roles and repeat exercise**

### IV. Mechanics of scoring targets
- **A. Center scores a 10**
  1. Dot in center of smallbore 50-foot position target and 10-meter air rifle target
  2. White spot on light rifle target
  3. Center shots or X’s
- **B. Bands in descending value**

## Application

**REVIEW** major points of preceding lessons using **QUESTIONS** to stimulate shooters' thoughts.

Have each shooter **DRY FIRE** a few shots on a standard target using expanded range commands.

Have each shooter **FIRE** three to five shots from bench-rest position at sighting target.

Allow shooters to **ADJUST** sights during this refresher of last meeting. **PROVIDE** help for any shooter needing it.

Have each shooter **FIRE** ten record shots, moving clockwise around target face. **ALLOW** about 20 minutes to complete course of fire unless all shooters finish earlier. **ENCOURAGE** them to take their time and **SHOOT** carefully.

Use carefully selected targets or illustrations of targets to **ILLUSTRATE** how to score them.
Provide some pre-selected targets to challenge young people in their scoring process.

Show how a backer target can reveal a shot from another firing point.

Demonstrate and have shooters practice using inward and outward gauges.

Score targets shot in this exercise twice in small groups with teen leader or adult supervision, first without any scoring aids, then with gauges.

Allow shooters to use several types of scoring devices, if available.

Review fundamentals of shooting and scoring process.

Prepare shooters to learn standing position in next session.
Lesson Narrative

Before we begin shooting today, let's review the fundamentals we have already learned. We will continue to follow the rules of safe shooting on the range, including using eye and ear protection. Proper sight alignment is fundamental to development of a sight picture, breath control, trigger control, and follow through is essential for accurate shooting. We have learned to follow range commands, and we will continue to use the expanded ones for this session. Finally, we learned last time how to adjust the sights on our rifles to center the point of impact on the desired spot.

Sight Picture and Sight Adjustment from Bench

[I instructor note: Use the expanded range commands to bring the first relay of shooters and coaches to the line. Have them dry fire several shots on a standard target while reinforcing sight alignment, sight picture, breath control, trigger control and follow through. Once they have dry fired a few shots, move on to live firing and fine tuning their sight adjustment.]

Adjusting the Sights on Your Rifle

Now, fire a three- to five-shot group using a consistent sight picture. Use that group center to adjust your sights. Check them by firing several more shots until you are satisfied with the adjustment. Discuss any questions with your "coach" and a teen or adult leader. Be sure to keep the muzzle down range during all adjustments. Once you have finished adjusting your sights, switch roles and let your partner adjust the sights on his or her rifle.

[I instructor note: Use standard range commands to control the range throughout this exercise. If each pair of shooters will be using the same firearm, have the first shooter fire a record target before switching roles and repeating the process.) Once you have finished adjusting the sights on your rifle, switch roles with your partner and assist them with the process.

Shooting for Scores

Now that you have adjusted your sights we will be shooting one ten-shot target for scoring. Mark a target with your name and hang it on the target frame. Use the center bulls, the ones with the line around them, as sighting targets if you feel the need. Shoot only one shot at each of the scoring bulls on the target, moving clockwise around the target face. Use a loading block to keep track of the shots you have fired, and be sure you are shooting at the proper target. Once you have completed your string of shots, switch roles and observe or spot as your partner shoots his or her scoring shots.

[Standard range commands should be used to operate the range during this shooting session. Allow approximately 20 minutes for the series of 10 shots, but if all shooters finish early be prepared to move on to the next session.]

Scoring Targets

Each scoring target has a maximum value of 10 points. The tiny dot in the center of the air rifle or smallbore target has the value of 10. Shots that remove the dot are center shots or X’s. Each consecutive scoring band is
worth one less point than the one inside it, so the target scores 10-9-8-7-6-5-4-3-2-1. The ring between the dark bands is part of the higher value scoring area. Any shot touching the ring is given the higher score. Shots that fail to touch any of the scoring area are given a value of zero.

Sometimes a shooter gets confused and fires extra shots at one bull without firing at another one. If the target has only the proper number of record shots, the extra shot is penalized one point and referred to the bull that was not fired upon. If excess shots are taken on the target, the shooter loses the higher value hit on each target with multiple shots, even if that shot is outside the scoring area. If those excess shots were fired by another shooter (cross-firing), they are not counted against the shooter and are recorded as misses for the person who fired them. If the first sighting shot falls outside the sighting area and the shooter indicates that it did so, it is not counted as an excess record shot.

Scoring a target can be challenging. Holes may not be cleanly cut, and the exact edge of the bullet hole may be unclear. Scoring gauges or plugs are extremely valuable in that situation. An inward scoring plug indexes in the bullet hole and shows where the edge of the bullet struck. If the edge of the gauge or plug touches the scoring ring, the shot is given that value. Inward scoring gauges are also used to determine center shots. If the flange of the gauge does not touch the 9 ring, the shot is scored as a center shot. An outward scoring gauge makes determining “tens” easier. It uses the 7 ring as a reference. If any of the 7 ring is visible, the shot counts as a 10. If the flange obscures the 7 ring, the shot counts as a 9.

**Scoring Your Targets**

Each of the scoring bulls on the target you shot is worth 10 points, so your total possible score could be as high as 100 points. Do not worry about the score you made. You should record it in your shooting journal, but our main objective is to learn how to score a target.

Score several targets in a small group. The first time through, score them without using any type of scoring aid. Record the scores on your pad, listing each bull by number and score. Then score them again using the scoring gauges. Work with an adult or teen leader to verify your scores. While the scores are being posted, you may want to try scoring several other targets using the gauges.

**Summary**

In this session we reviewed sight alignment, sight picture and trigger control. We sighted our rifles to place the center of their groups on the center of the bull, and fired a ten-shot match from the bench-rest position. We also learned how to score targets and how to use scoring aids. The next session will start teaching the basic shooting positions, using the standing or off-hand position.
Summary Activities

1. Have each shooter shoot a series of ten shots on a standard target and score their target. Be sure to have them record their scores, sight adjustment measurements and other new items they learned in this session in their shooting journals.

2. Provide a group of targets for scoring. Have each shooter score the set, and compare their scores. Provide scoring aids and have them repeat the scoring as a group. Note how the scoring changed on some close shots.

3. If time permits, allow shooters to fire an additional match from the bench-rest position. Have them compare their scores from the two matches and try to determine why any differences exist.

Sharing and Exhibit Ideas

1. Demonstrate how to score a target.

2. Demonstrate the proper use of inward and outward scoring gauges.

3. Record the scores fired and the things you learned in your shooting journal. Display the journal or discuss the contents with an interested friend or adult.

4. Look up a target shooting game fired with air rifles or smallbore rifles. Discuss the targets used and the rules. Outline the game for your shooting group, or share your findings with an interested person.
Standing Positions

John Kvasnicka, William F. Stevens and Ronald A. Howard Jr. *

Objectives
Participating youth and adults will:
1. Understand and practice the arm-rest standing rifle position.
2. Understand and practice the free-arm (off-hand) standing rifle position.
3. Understand and practice the principle of skeletal support in the standing position.
4. Practice safe range and shooting procedures.
5. Practice peer coaching on the firing line.
6. Have fun while learning.

Roles for Teen and Junior Leaders
• Demonstrate the standing positions.
• Demonstrate use of the rifle stand or support.
• Act as range officers or assistants.
• Assist shooters in attaining a proper standing position.
• Assist any shooter having difficulty with his or her position.

Parental Involvement
• See Roles for Teen and Junior Leaders above.
• Monitor one or two shooting positions as assistant range officers.
• Score targets.
• Arrange for or provide refreshments.
• Arrange for or provide transportation.

Best Time to Teach
Any time of year, after basics of firing a shot from the bench are mastered and prior to teaching the other positions

Best Location
Any safe indoor or outdoor range

Time Required
About 1 hour (repeat as needed)

Materials/Equipment
- rifles
- ammunition
- eye and ear protection
- targets
- tape or clips to hang targets
- adequate backstop
- rifle stand or support

References
Teaching Outline

Presentation

I. Review
   A. Shooting and personal safety
   B. Sight alignment
   C. Trigger control
   D. Sight picture
   E. Range commands and shooting procedure
   F. Sight adjustment
   G. Scoring targets

II. Shooting positions
   A. Posture of the body and rifle during the act of shooting
   B. Body position considerations
      1. Comfortable and relaxed
      2. Maximum skeletal support
      3. Alignment with target
   C. Types of positions
      1. Bench-rest
      2. Standing
         • arm-rest
         • off-hand
      3. Kneeling
      4. Sitting
      5. Prone
      6. Supported positions
   D. Learning sequence
      1. Standing
      2. Kneeling
      3. Sitting
      4. Prone
   E. Reasons for using sequence
      1. Each position has more support that the previous one
         • increased stability
         • better groups and scores
         • higher achievement
      2. Confidence and learning increased

III. Learning the standing position
   A. Arm-rest standing position
      1. Proper body position
         • feet shoulder width apart
         • shoulders pointing to target

Application

LEAD brief discussion focused on major elements of preceding lessons.
REINFORCE any major points not covered by shooters.

DEFINE shooting position.

ASK shooters what would make a shooting position effective. STRESS these points.

DEMONSTRATE or illustrate each position without equipment.
DISCUSS relative stability and uses of each one.

NOTE that supported positions are used mostly by field shooters. POINT OUT reason for teaching positions in this sequence.

DISCUSS skeletal support rather than using muscles for support.

Discuss positions and have volunteer or teen leader DEMONSTRATE.
• weight equally distributed
• head and body erect
• upper part of non-dominant arm against chest

2. Proper rifle position
• butt in shoulder pocket
• butt aligned so sights at eye level
• dominant side hand on rifle grip
• non-dominant hand under forend
• use of rifle stand

3. Alignment with target
• vertical adjustment
  - muscle movement
  - hand position on stock
  - body posture
• horizontal adjustment - moving the feet
• natural point of aim on target

4. Dry fire
5. Live firing on target face
• Shoot for group on one bull
• Rest between shots
6. Reverse roles and repeat

B. Free-arm (off-hand) standing position
1. Similar to above
2. Upper arm clear and not supported by body

C. Supported-standing position
1. Body position as above
2. Rigid object for support
• non-dominant hand as a cushion
• increased support and accuracy
3. Hunting or field shooting position

IV. Summary
A. Introduction to positions
B. Standing position
1. Arm-rest position
2. Off-hand position
3. Supported-standing position
C. Alignment of body and target
D. Natural point of aim

DEMONSTRATE raising butt on shoulder to bring sights to eye level.

DEMONSTRATE palm-rest, fist and finger-tip rests, as well as open hand.

DEMONSTRATE use of a rifle stand and discuss reasons for using one.

DISCUSS merits of each type of vertical adjustment.

STRESS moving feet so target is on natural point of aim.

USE standard range commands and procedures. STRESS proper position and skeletal support.

FIRE five-shot group at one bull.

STRESS importance of RESTING between shots.

USE standard range commands and firing procedures.

DEMONSTRATE classic off-hand position. Do NOT fire from this position.

DEMONSTRATE supported-standing position.

Have shooters FIRE another five-shot group using post or other structure.

COMPARE group to one fired earlier. ASK why hunters might prefer supported position. STRESS making clean kills.

USE questions to review material covered during this teaching session.

PREPARE shooters for kneeling position (kneeling roll needed) next.
Lesson Narrative

All of the principles of firearms safety and personal safety we have practiced in our earlier sessions continue to apply. Self-control, muzzle control, action open and exposed on an empty rifle and finger off the trigger have become practiced habits for safety. You should feel partially undressed without eye and ear protection properly in place. You are the one responsible for safety on the range and the range staff will help to keep shooting safe for all of us.

The fundamentals of good rifle shooting are simple, and we have practiced them many times. Sight alignment, sight picture and trigger control are the core of good rifle marksmanship.

The range commands that govern activity on the range should be familiar enough that anyone of you could act as a range officer. The expanded range commands and shooting procedures we have been using are also very familiar, and they should help you shoot better.

Sight adjustment has been introduced, and you have had a chance to practice it several times. In the last session, we fired a match from the bench-rest position and scored those targets, learning how to use scoring gauges or plugs. Now we are ready to introduce the classic rifle shooting positions.

Shooting Positions

Rifle shooting positions refer to the posture and attitude of the body and the rifle during shooting. Several common characteristics are common to all sound shooting positions. They form the foundation of good shooting. The body should be comfortable and relaxed. Most of the support for the rifle should come from the skeleton or bones, with minimum muscle activity and potential joint movement. The body should be aligned with the target so minimal of muscular activity is needed to center the sights on the target.

Several classic shooting positions have evolved over the years. You have already learned the bench-rest position and used it many times. It is the most stable of all shooting positions. We used it to learn basics because it gives shooters a high level of support and success.

The standing position is the most challenging. It involves fewer points of support for the rifle, more muscle activity and less stability than all the others. Two basic forms of the standing position differ only in the amount of support for the non-dominant arm. The armrest standing position is used for all types of target shooting. The off-hand or free-arm standing position was formerly used in light rifle shooting. It is still used by many field shooters when a more stable position is not possible.

The kneeling position adds support and provides greater stability than either of the classic standing positions. Kneeling positions are used in smallbore position shooting and in field shooting.
The sitting position is more stable than the kneeling position. Two forms are most commonly seen, cross-legged or closed sitting positions and an open-legged sitting position. Both forms give excellent shooting results. In four-position rifle shooting, the rules define legal sitting positions. Field shooters also use this position.

The prone position is the most stable of the classic shooting positions. It is used in numerous types of shooting, both on the range and in the field.

All of these positions may be used with additional support by field shooters. Portable supports like shooting sticks or rifle mounted bipods or any available structural support like trees, posts, rocks or logs can add support for better shot placement.

[Instructor note: The best and most successful learning sequence for young people who can handle all of these positions moves from the bench-rest position to standing. After the basics of the standing position are learned, the shooter can proceed to kneeling, sitting and prone – in that order!]

Teach all of the positions, even if your event or the one you think they are interested in learning does not involve all of them. Rifle shooters tend to do more than one thing, and the positions will find use in their shooting. We begin with the most difficult and unstable of the positions and move toward the most stable one. That aids learning in several ways. The leap from the bench to standing is tremendous. Scores plummet, but the shooter understands the potential accuracy of the rifle. As a result, they know that work must be done to improve their standing position scores. Muscle tremor and fatigue enter the picture with the progression through the positions stability and achievement increase. That builds confidence and reinforces the need for concentration on the standing position or its poor utility for field shooting. The young person is also challenged to continue practicing for better scores.

You will note that breath control has not been mentioned thus far. Nearly every shooter will stop breathing naturally during the sighting and shooting sequence. Mentioning breath control or advising any of the outmoded ways of proper breath control causes more problems than it cures. Comment on it only if a shooter is having problems, then note that the best shooters merely stop breathing for a brief time (about three to five seconds) after a shallow inhalation.]

**Learning the Standing Positions**

The most commonly used standing position is the arm-rest standing position. The shooter stands with the feet about shoulder-width apart and the toes at nearly a right angle to the target. The weight is equally distributed, and the shoulders are in line with the target. The head and body are erect. As the rifle is mounted, the body bends back slightly to counter the mass of the rifle and keep the center of mass over the sport between the feet. The upper part of the non-dominant arm lies along the rib cage and is supported by it. For shooters who are able to do so, the elbow rests on or inside the flare of the hip. Try getting into position without the rifle.
The butt of the rifle is placed high in the shoulder pocket, so the sights are at eye level without moving the head. The dominant hand grasps the rifle grip with the trigger finger along the trigger guard. The non-dominant hand supports the rifle’s forend. The hand supporting the stock may be open, held flat under the forend, clenched into a fist with the rifle resting on the first digits of the fingers or pinched together with the forend resting on the finger tips or the thumb and finger tips. All of these positions are acceptable. Try them and see which one fits you best.

Fatigue is a significant factor in shooting from the standing position. Shooters in position matches rest the rifle on rifle stands between shots. Many coaches and range officers consider the rifle stand an important safety device as well. It keeps the rifle pointed down range while allowing the shooter an opportunity to rest between shots. Rifle stands need not be elaborate or expensive. They should hold the rifle slightly below shoulder height, permitting the shooter to load the rifle and begin aligning the sights before the rifle is lifted from the stand and positioned for firing the next shot.

The body should be moved until the rifle rests on the target naturally. This “natural point of aim” is basically having your rifle aligned with your target to minimize the effects of body movement. To achieve natural point of aim, the shooter gets into position with eyes closed. When the eyes are opened, if the sights are not pointing at the target the shooter adjusts his/her stance. Vertical adjustments can be made by changing target height, moving the supporting hand forward or backward on the forend, changing the body posture slightly or applying muscle power. The last option is the least desirable, since it involves muscular movement and joint instability. Horizontal adjustments are made by moving the feet until the rifle rests on the target naturally. Having the natural point of aim on the target reduces the wobble area to a minimum and increases both consistency and accuracy.

Let's dry fire several shots. [Use the expanded range commands and walk the shooters through several shots. Reverse roles and repeat the dry-firing sequence. Repeat several times if needed.]

Now let's try a series of five shots. Pick a single bull on the target, take your time and shoot at the same point of aim for each shot. [Use the expanded range commands for the first shot, then allow the shooters to fire the rest of the shots on their own. Reverse roles after five rounds and repeat the sequence several times if desired. Change targets and analyze the groups between shooting sessions, forcing the shooters to rest. Left on their own, the shooters will tend to shoot too much, too quickly and without adequate rest. That results in learning bad habits. Prevention is easier than a cure.]

**Other Standing Positions**

The free-arm standing position or off-hand position is less stable than the arm-rest standing position. The only difference is the position in the posture of the arm supporting the forend. The arm-rest position supports the arm with the side of the body. The free-arm position has the arm extended enough for the upper arm to be held away from the body.

The supported-standing position makes use of any available support to add stability to the arm supporting the forend. Rigid objects make the best supports. If the support is made of hard material, the non-dominant hand should form a cushion between the support and the rifle stock. Supported-
standing positions are not used in formal target shooting, but they are extensively used by hunters. The purpose of the rifle in hunting is to achieve a quick, clean kill. Any aid to accurate shot placement, like the use of support for shots taken from the standing position, shows respect for the game animal and sound hunting ethics.

Let’s shoot another group on one bull of the target using a supported-standing position and compare the results with those fired from the arm-rest standing position. [Use the expanded range commands and encourage careful shooting. Reverse roles and repeat with the other shooters. Compare the group size and placement for those shot without support and those with it. Discuss the reasons and usefulness of the supported position.]

Summary

In this session we introduced the basic shooting positions and learned how to use the standing position. We shot groups using the formal standing position and a supported one. We discussed the off-hand or free-arm standing position. We stressed the importance of aligning the body with the target so the target is on the rifle's natural point of aim. Next time we will introduce the kneeling position.

Summary Activities

1. Compare the groups fired from the two starting positions and discuss the reasons for the differences.

2. Analyze the shot placement on a series of standing targets relative to alignment with the natural point of aim, looking for lateral stringing of the shots.

3. Diagram the skeletal support of shooter in standing position.

4. Allow shooters to fire a ten-shot match from the standing position and record the results in their shooting journals.

Sharing and Exhibit Ideas

1. Make a poster showing a proper standing position. Illustrate skeletal support and proper rifle positioning.

2. Demonstrate one or more of the standing positions.

3. Record what you learned today and the scores in your shooting journal. Exhibit the journal at a suitable event.

4. Record your progress in shooting from the standing position on a graph, taking the results from your shooting journal. Discuss the changes you made or the reasons for the progress.

5. Study a shooting match that uses a standing position. Share the content and rules of the match with your shooting group or another interested group.
Kneeling Position

John Kvasnicka, Ronald A. Howard Jr. and William F. Stevens*

Objectives

Participating youth and adults will:
1. Understand and practice the kneeling rifle position.
2. Practice the supported kneeling position.
3. Practice safe range and shooting procedures.
4. Apply and practice skeletal support and finding a natural point of aim.
5. Have fun while learning.

Roles for Teen and Junior Leaders

- Demonstrate the kneeling position.
- Act as assistant range officers.
- Assist shooters with their positions.
- Score targets.
- Assist with making kneeling rolls

Parental Involvement

- See Roles for Teen and Junior Leaders above.
- Assist shooters needing special attention.
- Provide materials for kneeling rolls.
- Supervise one or more firing points.
- Arrange for or provide transportation.
- Arrange for or provide refreshments.

Best Time to Teach

Any time of year, but after teaching the standing position and before teaching sitting or prone positions

Best Location

Any safe shooting range

Time Required

Approximately 1 hour

Materials/Equipment

- rifles
- ammunition
- targets
- tape, clips or other target hanging materials
- eye and ear protection
- shooting mat
- kneeling roll
- chairs or benches
- adequate backstop
- open bolt indicators

References

NRA Junior Rifle Shooting.
The NRA Junior Rifle Handbook.
The Basics of Rifle Shooting.

* Executive Director, Minnesota Deer Hunters Association; 4-H and Youth Development Specialist, Texas Agricultural Extension Service; and Conservation Affairs Manager for Federal Cartridge Company, Anoka, MN.
Teaching Outline

Presentation

I. Review
   A. Safety and range operation
   B. Skeletal support
   C. Natural point of aim and aligning body with target
   D. Standing positions
      1. Arm-rest standing
      2. Free-arm standing
      3. Supported-standing

II. Review the arm-rest standing position
   A. Dry fire
   B. Live fire
   C. Change targets

III. Learning the kneeling position
   A. Lower body position
      1. Dominant side
         • lower leg tucked under body
         • kneeling roll under front of ankle, supporting foot
         • foot position
            - heel raised, sitting on heel
            - foot tucked sideways, sitting on instep
            - toes pointed, sitting on heel
      2. Non-dominant lower leg vertical
      3. Sitting on dominant-side foot (hips clear of floor or mat)
   B. Upper body position
      1. Non-dominant elbow on upright knee
      2. Head erect and relaxed
      3. Body inclined forward and relaxed
   C. Rifle position
      1. Butt high in shoulder pocket
      2. Sights at eye level
      3. Dominant hand grasping grip
      4. Non-dominant hand supporting forend
   D. Alignment with the target
      1. Natural point of aim on target

Application

Use questions to STIMULATE a review. STRESS skeletal support, using natural point of aim and aligning body with target.

Briefly REVIEW standing position. Have shooters DRY FIRE several shots, then FIRE ten record shots on standard target.

DEMONSTRATE and have shooters TRY kneeling position without equipment. STRESS using a comfortable position for dominant-side foot.

DEMONSTRATE use of a kneeling roll. ADJUST positions as needed.

STRESS having relaxed body. COMMENT on rule that buttocks cannot touch mat or ground.

DEMONSTRATE elbow positions and STRESS skeletal support. EMPHASIZE relaxed and comfortable body and head position.

DEMONSTRATE bringing rifle to eye by adjusting the butt location or adjusting butt plate. ADDRESS use of sling or hand stop if they are available. Have shooters PRACTICE adjusting and using them with safe rifles on range.

EMPHASIZE using natural point of aim for best results.
2. Vertical adjustment
   • change target height
   • lower rifle by moving
     supporting hand forward
   • raise rifle by moving
     supporting hand back
3. Horizontal adjustment
   • rotate body left or right
   • pivot on dominant foot or
     ankle
E. Dry fire from the kneeling position
F. Live fire from the kneeling position
   1. Shoot five shots at one bull
   2. Concentrate on form and
      group
   3. Reverse roles and repeat

IV. Supported kneeling position
A. Body position as above
B. Support forend and hand
   1. Cross-sticks
   2. Chair back
   3. Other support
C. Live fire
   1. Select one bull
   2. Fire five shots
   3. Concentrate on group
D. Compare supported and classic
   kneeling groups

V. Summary
A. Review of position shooting
B. Review of standing positions
C. Kneeling position
   1. Classic kneeling position
   2. Supported kneeling position
D. Sitting position next time

**DEMONSTRATE** vertical and horizontal adjustments in rifle position.

Have shooters **DRY FIRE** several rounds, then **LIVE FIRE** a five-shot group on a selected bull. **REVERSE** roles and repeat process.

**DEMONSTRATE** supported kneeling position and have shooters **FIRE** another group on second bull.

**COMPARE** size of two kneeling groups and **DISCUSS** reasons for the differences.
Have shooters **FIRE** a ten-shot kneeling match if time permits.
Use **QUESTIONS** to stimulate review of kneeling position. **SCORE** targets, **DISCUSS** scores and **ENTER** day's shoot in shooting journal.
Lesson Narrative

Position rifle shooting involves the same personal and shooting safety procedures we have been practicing up to this time. Two major principles govern all position shooting. First, the support for the rifle must be supplied as much as possible by the bones, not the muscles. Second, the shooter will perform best when the body is relaxed and the natural point of aim for the rifle is on the target. In the last session we learned about standing positions and fired from the classic target shooter's standing position and a supported-standing position. We are going to shoot a ten-shot match from the standing position to review.

Reviewing the Standing Position

[Instructor note: Use the standard range commands to control the line.] Before we do any live firing, dry fire several times to prepare yourself. Now fire a ten-shot match. Shoot only one shot at each scoring bull. If you need to fire some sighters, use the two bulls in the sighting ring. (Allow all shooters to fire a ten-shot series, keeping things moving, but not hurrying the shooters.) Now retrieve your targets and put fresh ones on the hangers.

Learning the Kneeling Position

The kneeling position gives more support than the standing position. Watch carefully as we demonstrate. The dominant-side leg is tucked under the body with a kneeling roll tucked under the ankle or foot. Three foot positions are acceptable. The foot may be supported by the toes with the heel raised, allowed to lie on its outer side or stretched out with the top surface on the ground or mat (supinated). The shooter may sit on the foot or heel as long as the buttocks do not touch the mat or ground. The non-dominant leg is held with the lower leg vertical as a support for the non-dominant arm.

The non-dominant elbow is placed on or over the upright knee, forming a fairly solid brace for the supporting arm. The head is erect and relaxed. The body inclines forward slightly, supported on the elbow and knee. The body should be relaxed.

The rifle is positioned rather high in the shoulder pocket, bringing the rifle into alignment with the shooter's eye. On rifles with adjustable butt plates, the butt plate can be lowered to fit the shoulder pocket while the comb is raised to position the sights in line with the eye. The dominant hand grasps the rifle's grip with the trigger finger along the trigger guard. The non-dominant hand supports the forend. The hand may be braced against a hand stop and the arm may be supported by a sling.

The natural point of aim must be on the target if the best accuracy is to be achieved. Aligning the body to the target so the rifle points naturally to it is essential. Vertical adjustments in the natural point of aim can be achieved either by moving the target to the existing point of aim or by moving the position as the hand on the forend. Moving the hand forward
(toward the muzzle) lowers the rifle. Moving it back (toward the receiver) raises the rifle. Horizontal adjustments are made by pivoting the body on the dominant foot or the kneeling roll and moving the upright (non-dominant) leg into alignment with the target. Try getting into a kneeling position without a rifle. Let the teen leaders and other range assistants help you.

**Shooting from the Kneeling Position**
[Use the standard range and shooting procedures to control the line during this shooting session.]

Now, let's apply what we have learned about the kneeling position on the range. Dry fire several shots before shooting a five-shot group on a selected bull. Check to make sure that the rifle is lining up with the target naturally. Concentrate on your shooting form and shoot a group using a consistent sight picture.

**Using a Supported-kneeling Position**

Many field shooters find an application for a supported-kneeling position. Shoot another group on a different bull using the position being demonstrated. Any support for the forend and hand can strengthen the kneeling position. Shooters often used cross sticks or other available support. In the range environment, a chair back makes a convenient rest. Remember to cushion the forend with the hand during the firing. Compare the group you shot in the classic kneeling position with the one fired from the supported position. How do the two groups compare? Why might a field shot prefer to have the additional support? [If time permits, have the shooters fire a ten-shot kneeling match as a wrap-up activity.]

**Summary**

In this session, we reviewed the fundamentals of position shooting from the standing position and learned to use the kneeling position. We also compared a supported-kneeling position with the classic, target-shooting kneeling position. In our next session we will explore the sitting position.

**Summary Activities**

1. Have all shooters fire a ten-shot match from the kneeling position. Score the targets and enter the scores in journal.

2. Discuss the difference between the standing and kneeling scores and the reasons for that difference. Focus on differences in stability of the positions and the number of support points.

3. Have each shooter try using different positions for the dominant foot to determine which of them is most comfortable.

4. If it has not been done already, demonstrate how to use stock adjustments to aid in proper shooting form. Include the use of the sling and hand stop.
Sharing and Exhibit Ideas

1. Make a poster showing proper kneeling positions. Include an outline of skeletal support and rifle positioning.
2. Demonstrate the kneeling position, showing the variety of foot positions possible. Discuss adjustments for placing the natural point of aim on the target.
3. Record your scores and the new things learned in this session in your shooting journal. Exhibit the journal in a suitable event.
4. Record your progress in the kneeling position on a graph, taking the results from entries in your shooting journal. Discuss the changes you have made and the reasons for them.
5. Study a shooting game that uses the kneeling position. Share the game and its rules with other shooters in your group or with other interested persons.
6. Share what you have learned about rifle shooting positions with an interested adult.
Sitting Position

John Kvasnicka, Ronald A. Howard Jr. and William F. Stevens*

Objectives
Participating youth and adults will:

1. Review and practice the standing and kneeling positions.
2. Understand and practice the sitting rifle position.
3. Practice a supported sitting position.
4. Practice safe range and shooting procedures.
5. Apply and practice skeletal support and finding a natural point of aim.
6. Have fun while learning.

Roles for Teen and Junior Leaders

- Demonstrate the sitting position.
- Act as assistant range officers.
- Assist shooters with their positions.
- Score targets.

Parental Involvement

- See Roles for Teen and Junior Leaders above.
- Assist shooters needing special attention.
- Supervise one or more firing points.
- Arrange for or provide transportation.
- Arrange for or provide refreshments.

Best Time to Teach
Any time of year, but after teaching the standing and kneeling positions and before teaching the prone position

Best Location
Any safe shooting range

Time Required
About 1 hour

Materials/Equipment
- rifles
- ammunition
- targets
- tape, clips or other target hanging materials
- eye and ear protection
- shooting mats
- open bolt indicators

References
NRA Junior Rifle Shooting.
The NRA Junior Rifle Handbook.
The Basics of Rifle Shooting.

* Executive Director, Minnesota Deer Hunters Association; 4-H and Youth Development Specialist, Texas Agricultural Extension Service; and Conservation Affairs Manager for Federal Cartridge Company, Anoka, MN.
TEACHING OUTLINE

Presentation

I. Review
   A. Safety and range operation
   B. Skeletal support
   C. Natural point of aim
   D. Standing position
   E. Kneeling position
   F. Supported standing and kneeling positions

II. Practice with the standing position
   A. Arm-rest standing position
   B. Dry fire several times
   C. Live fire ten rounds

III. Practice with the kneeling position
   A. Classic kneeling position
   B. Dry fire several times
   C. Live fire ten rounds

IV. Learning the sitting position
   A. Body position
      1. Sitting on mat or ground
      2. Body inclined forward at waist
      3. Head relaxed (slightly forward)
      4. Extended open position
         • nearly square to target
         • knees fairly high
         • feet braced about shoulder width apart
         • elbows inside or in front of knees
      5. Extended crossed ankles
         • body facing about 30 degrees to the dominant side of target
         • legs crossed at ankles
         • elbows in inside hollows of knees
      6. Crossed-leg position
         • body oriented 45 to 60 degrees to dominant side of target

Application

Use questions to help shooters REVIEW the main points of safety and position shooting covered to date. STRESS skeletal support and natural point of aim.

Have shooters FIRE a ten-shot match from standing position. USE standard range procedures.

Have shooter FIRE a ten-shot match from the kneeling position. USE standard range procedures.

DISCUSS and DEMONSTRATE sitting positions.
Have each shooter EXPERIMENT with these positions without equipment to determine which one fits their build and size.

STRESS nearly equal and excellent support in these positions.
• lower legs crossed  
  - non-dominant leg over dominant one  
  - sides of feet tucked under opposite leg  
  - elbows resting in hollows inside knees

B. Gun position  
1. Butt of rifle in shoulder pocket  
2. Sights at eye level  
3. Non-dominant hand supports forend  
4. Dominant hand on grip

C. Aligning the body to the target  
1. Vertical adjustments  
   • alter target location  
   • moving the forend arm  
     - forward to lower rifle  
     - back to raise rifle  
   • moving feet  
     - forward or toward each other to lower rifle  
     - back or away from each other to raise rifle  
2. Horizontal adjustments  
   - rotate position in desired direction

V. Shooting from the sitting position  
A. Obtain a proper sitting position  
B. Dry fire several times  
C. Live fire five shots at a single bull  
D. Reverse roles and repeat

VI. Summary  
A. Position shooting  
   1. Skeletal support  
   2. Natural point of aim  
B. Review of standing and kneeling positions  
C. Sitting position  
D. Prone position next time

DEMONSTRATE alterations in adjustment or use of sling during this phase. NOTE that head will be slightly forward.

DEMONSTRATE both vertical and horizontal position adjustments.

USE standard range and shooting procedures to walk shooters through DRY FIRING and LIVE FIRING for a group.

If time permits, have each shooter FIRE a ten-shot match from sitting position.

REVIEW positions used so far. COMMENT on increasing level of support and changes in scores or group sizes.
Lesson Narrative

We have become very familiar with personal and shooting safety on the range, and we have learned to apply the basic principles of position shooting. We make every effort to have the target location coincide with the natural point of aim for the rifle. We also strive to have the rifle supported primarily by the bones with as little muscle involvement as possible. We have fired from the standing and kneeling positions, both with and without support and noted the differences in our group size and scores. We also shot several short matches while reviewing the basics of those positions. During this session, we will explore the sitting position and find one that is most effective for us.

Practicing the Standing and Kneeling Positions

[Use standard range commands and procedures to control the line.] Before doing any live firing, dry fire several times to help your mind prepare for a short match. Now fire a ten shot match from the standing position. Remember to shoot only once at each bull. If you need to fire any sighters, use the two bulls inside the sighting ring. [Allow the shooters to fire a ten shot series. Keep things moving, but do not rush them as they shoot.]

Assist your partner as he or she fires their record shots standing.

Retrieve those targets and replace them with fresh ones. Fire another ten-shot match, this time from the kneeling position. When you are finished, make your rifles safe and ground them.

Learning the Sitting Position

The sitting position is used in four-position shooting and in field shooting. It has abundant support for the rifle and provides a stable platform for accurate shooting. The shooter sits on the ground or the shooting mat, using the legs as supports for the elbows. Several acceptable styles of sitting position are used. We will demonstrate each one and allow you to try them without equipment. Then you can apply the one you prefer on the range.

All sitting positions share some common elements. The shooter is sitting down, firmly planted on the ground or mat. The body is inclined forward from the waist, relaxed and resting on the elbows. The head is as erect as possible, leaning forward slightly to avoid strain on the neck. The elbows are braced at the knees.

In the extended, open sitting position, the shooter sits nearly square to the target. The knees are fairly high, and the feet are firmly planted a bit more than shoulder width apart. The elbows are usually set inside the knees or slightly ahead of the knees. Note that placing the point of the elbow on the point of the knee is quite unstable, almost like trying to put two balls atop each other. In the extended, crossed-ankle sitting position, the shooter sits facing about 30 degrees to the dominant side of the target. The legs are extended forward with the ankles crossed. The elbows rest on the insides of the knees.
In the closed sitting position, the shooter sits facing slightly more to the dominant side of the target, perhaps 45 to 60 degrees. The non-dominant side leg is crossed over the dominant-side leg and pulled in rather close to the body. The feet are tucked up under the opposite legs, supporting them with the sides of the foot. As in the other positions, the elbows rest in the hollows inside the knees.

The butt of the rifle is settled in the shoulder pocket, and the sights are level with the eye. The non-dominant hand supports the forend of the rifle, perhaps with the aid of a sling and hand stop. The shooting hand grasps the rifle grip with the trigger finger lying along the trigger guard.

Vertical adjustments in the point of aim are made by changing the target height, the location of the hand on the forend or the position of the feet. Moving the hand forward on the forend lowers the rifle. Moving it back toward the receiver raises it. Similarly, extending the legs (feet) or moving them further apart lowers the rifle. Drawing the feet toward the body or moving them toward each other raises the rifle. Horizontal adjustments are accomplished by pivoting the entire stance from the base.

Try these positions without equipment to see which suits your build and size the best. All of them are stable and completely acceptable sitting positions. Raise your hand if you need some help or have a question.

**Shooting from the Sitting Position**

[Use standard range procedures to control the range during this firing sequence.] Let's move to the range and try this new position by firing a group. First, get into the sitting position you have selected. Orient yourself to the target, and dry fire several shots to get the feel of the position. Select a single bull and fire five shots trying to shoot a nice, tight group. Change roles with your partner and repeat the process. [After the targets are retrieved, pause while the groups are discussed. If time permits, have each shooter fire a ten-shot match from the sitting position, score the targets and evaluate the results.]

**Summary**

In this session we have reviewed the principles of using the natural point of aim and using skeletal support for solid shooting positions. We have fired short, practice rounds from the standing and kneeling positions; and we have developed a sitting position. In the next session, we will be exploring the most stable of the shooting positions - prone.
Summary Activities

1. Have each shooter fire a ten-shot match sitting. Score the targets fired from the three positions and evaluate the scores. Record all scores in the shooting journal.

2. Discuss the differences in the scores or groups fired from the three positions. Focus on the number of support points for the position and their stability.

3. Have each shooter try each of the sitting positions to see which one is most comfortable and consistent for them.

4. Demonstrate the use of the sling, other accessories and stock adjustments and their impact on attaining a proper position.

Sharing and Exhibit Ideas

1. Make a poster of the sitting positions. Include an outline of the bones supporting the position and the proper position of the rifle.

2. Demonstrate the various sitting positions for another interested person, showing how to alter the natural point of aim to compensate for different target locations.

3. Record your scores and the new things learned in this session in your shooting journal. Exhibit the journal at a suitable event.

4. Record your progress in the sitting position on a graph. Extract the data and your observations from your shooting journal. Discuss the changes you have made and the reasons for them.

5. Share what you have learned about rifle shooting positions with an interested adult.
Prone Position

John Kvasnicka, Ronald A. Howard, Jr. and William F. Stevens*

Objectives

Participating youth and adults will:
1. Understand and practice the prone rifle position.
2. Practice the standing, kneeling and sitting positions.
3. Practice safe range and shooting procedures.
4. Apply and practice skeletal support and finding a natural point of aim.
5. Have fun while learning.

Roles for Teen and Junior Leaders

- Demonstrate the prone position.
- Review the standing, kneeling and sitting positions.
- Act as assistant range officers.
- Assist shooters with their positions.
- Score targets.

Parental Involvement

- See Roles for Teen and Junior Leaders above.
- Assist shooters needing special attention.
- Provide materials for kneeling rolls, shooting mats or other accessories.
- Supervise one or more firing points.
- Arrange for or provide transportation.
- Arrange for or provide refreshments.

References


* Executive Director, Minnesota Deer Hunters Association; 4-H and Youth Development Specialist, Texas Agricultural Extension Service; and Conservation Affairs Manager for Federal Cartridge Company, Anoka, MN.
TEACHING OUTLINE

Presentation

I. Review
   A. Safety and range procedures
   B. Skeletal support and natural point of aim
   C. Position shooting
      1. Standing positions
      2. Kneeling positions
      3. Sitting positions
   D. Prone

II. Practice shooting
   A. Standing position
      1. Arm-rest standing position
      2. Dry fire
      3. Live fire ten rounds
   B. Kneeling position
      1. Preferred foot position
      2. Dry fire
      3. Live fire ten rounds
   C. Sitting position
      1. Preferred sitting position
         • extended, open
         • extended, crossed ankles
         • closed, crossed legs
      2. Dry fire
      3. Live fire ten rounds

III. Learning the prone position
   A. Proper body position
      1. Body prone, belly down on mat
      2. Line through body pointing slightly to dominant side of target
      3. Non-dominant elbow in front of body
      4. Dominant-side knee slightly flexed
      5. Head relaxed and erect
      6. Weight shifted slightly to non-dominant side
   B. Butt of rifle in shoulder pocket
      1. Sights at eye level
      2. Non-dominant hand supports forend of rifle
         • upper arm and hand supported by sling
         • use of hand stop or swivel
         • forearm at minimum of 30 degrees to mat or ground

Application

Use questions to REVIEW fundamentals of personal and range safety and fundamentals of rifle shooting.

INTRODUCE prone position as most stable shooting position.

Using standard range and shooting procedures have each shooter DRY FIRE several shots in each position, then LIVE FIRE a ten-shot match in each one. REVERSE roles and repeat procedure with other member of coach-pupil pair.

SCORE fired targets.

DEMONSTRATE proper prone position while DISCUSSING elements of sound prone shooting position.

SHOW that flexing the knee reduces heart tremor and increases comfort for some shooters.

DEMONSTRATE adjusting butt plate for proper eye alignment and sling or hand stop position to provide more support.

MENTION minimum forearm angle is a rule for position shooting.
3. Dominant hand on rifle grip
4. Dominant elbow on mat

C. Aligning rifle with the target
   1. Target at natural point of aim
   2. Vertical adjustments
      - Alter target height
      - Move non-dominant hand
        - Forward on forend lowers rifle (30 degrees to mat is minimum)
        - Back toward receiver raises rifle
        - Adjust sling and hand stop if present
   3. Horizontal adjustments
      - pivot on non-dominant elbow
      - move body left or right
      - adjust to natural point of aim

D. Dry fire several times
   1. Use standard range commands and procedures
   2. Check natural point of aim
   3. Adjust position as needed

E. Live fire
   1. Select a single bull
   2. Fire a five-shot group

F. Supported-prone position
   1. Support rifle
      - rifle rest
      - post
      - sandbags
   2. Select another bull
   3. Fire a five-shot group

G. Reverse roles and repeat

H. Replace targets and fire a ten-shot prone match

IV. Summary
A. Position rifle shooting
   1. Placing target on natural point of aim
   2. Relaxed neck and body
   3. Obtaining maximum bone support - minimum muscle action
   4. Sights brought to eye level
   5. Support for field shooting

B. Standing position
   1. Rifle over center of mass
   2. Arm resting on side

Have each shooter PRACTICE this position without a rifle.

Have shooters move to firing line and ASSUME a proper prone position. ASSIST shooters with position adjustments to put rifle on target using natural point of aim.

STRESS use of sling for additional support in prone position.

STRESS pivoting body on forward elbow and NOT muscling rifle into position.

Use standard range and shooting procedures to DRY FIRE and LIVE FIRE a five-shot group on a single bull.

Have shooters ADD support to their prone position and LIVE FIRE a second five-shot group at another bull. COMPARE group sizes and DISCUSS reasons.

FIRE a ten-shot prone match to summarize activity.

STRESS core concepts of position rifle shooting.

Have shooters REVIEW each of positions they have learned and DISCUSS key points in each one. STRESS relationship between amount of support and ease of hitting target precisely.
C. Kneeling position  
   1. Rifle on upright leg and forearm  
   2. Lower body sitting on foot  

D. Sitting position  
   1. Body sitting on ground  
   2. Forearms supported on knees  
   3. Knees braced  

E. Prone position  
   1. Most stable  
   2. Body lying on mat or ground  
   3. Elbows braced on mat  
   4. Rifle supported by forearms and accessories  

F. Perfect practice makes perfect  

**REVIEW** scores shot in each match of day. **ASSIST** shooters in making journal entries and **START** a practice schedule for any shooters wanting to participate in position rifle shooting.
Lesson Narrative

We will continue to use the personal and shooting safety procedures as we have throughout these sessions on rifle shooting. Supporting the rifle with the bones while minimizing the use of muscle power is essential to good rifle shooting. Using a proper position and moving the body to place the target at the rifle's natural point of aim enhance the ability to shoot well. Aside from the muscles that must be used, the body should be comfortable and relaxed when shooting.

We have learned three positions so far. We started with the standing position, learning three varieties: arm-rest, free-arm and supported-standing positions. We have practiced a proper standing position each time. The kneeling position also involved three variations. The dominant foot could be placed in three attitudes, with the shooter sitting on the foot. Additional support could be added to the kneeling position by field shooters when conditions were appropriate. Then we added the sitting position. It provided greater support and stability, and we tried several forms to find the one most consistent and comfortable for us. Today we will be learning the most stable of rifle position without additional support - the prone position.

Review and Practice Shooting

(Instructor note: All shooting in this session should use the standard range commands and shooting procedures. If time does not permit shooting matches in each position, have shooters fire three to five shots from each of the positions learned earlier. This constant reinforcement is a strong aid to learning.)

Before we begin learning the prone position, let's review the other positions we have learned. With the assistance of your coach and the range assistants, get into your standing position. Dry fire several times to refresh your skills, then shoot ten record shots. Remember to shoot only once at each bull. You may fire as many sighter shots as needed, but be sure to keep them on the sighting bulls.

Once you have completed the standing stage, change targets and repeat the sequence (dry firing and live match) with the kneeling and sitting positions. Pay careful attention to your shooting form to build stable shooting positions. After the shooters on the first relay have fired their standing, kneeling and sitting scores, change roles and have the other members of the coach-pupil teams fire the same course.

Learning the Prone Position

The prone position is the most stable of the unsupported rifle shooting positions. The body is supported for almost its entire length on the ground. The elbows are braced on the mat or ground, and the rifle is supported by both elbows and the shoulder. To develop a prone position, the shooter lies down on the shooting mat facing slightly to the dominant side of the target. The non-dominant elbow is in front of the shooter. Most shooters find that flexing the dominant knee slightly gives them a more stable and comfortable position with less tremor from their heartbeat. Flexing the knee will force the weight to
shift slightly to the non-dominant side. The feet may be supported on the tips of the toes, turned in or turned out at the shooter's discretion. Avoid the temptation to cross the feet with the legs straight. Doing so tends to invite a narrow, less stable position and tremors caused by moving the feet. The head should be as erect as possible without causing muscle strain. The neck should feel relaxed. Try this position without a rifle, and experiment with leg and foot positions to find one that is comfortable and stable for you.

The butt of the rifle should be firmly planted in the shoulder pocket with the sights at eye level. The non-dominant hand should support the forend of the rifle. On rifles equipped with slings and hand stops, the sling should be carefully adjusted to provide additional support for the forward arm. The hand should be firmly pressed against the hand stop and held in place by the sling. If this method is to be used, a shooting glove is almost essential for shooter comfort. The rules for position shooting require the shooter's forearm to maintain an angle of 30 degrees or more from the mat or ground. Braced in this position, the rifle should return naturally to alignment with the shooter's eye after any disturbance of the rifle's position. The dominant or shooting hand grasps the rifle's grip and provides additional support from the elbow being braced against the mat or ground.

**Aligning the Rifle to the Target**

Moving the body to have the rifle point to the target naturally is the key to good prone shooting. Vertical adjustments can be made by altering the target height if necessary. Minor adjustments in vertical position can be made by altering the location of the forward hand on the forend. Moving the hand forward lowers the muzzle while drawing it back raises the muzzle. Any alterations in hand position should be done along with adjustments to the hand stop and sling if they are being used.

Horizontal positioning is accomplished by pivoting the body. The forward elbow should be the pivot point for the body. All adjustments should be made involving the entire torso and lower body, allowing the body to be relaxed in the shooting position. Test the position to see that it is naturally aligned with the target, and re-adjust the position until it is right. Dry fire several times to check your position, then fire a five-shot group at one bull on the target. Once you have fired that group, add additional support (a post, rifle rest or sandbags) and fire a second group at a different bull. Then trade off with your partner and help him or her through the same firing sequence. Compare the supported and non-supported groups. Do they differ as much as the ones fired from the other positions? Why do you think that is the case? If time permits, each shooter should fire a ten-shot match from the prone position. Remember to shoot only once at each bull and to use the same position you have developed in the exercise where you shot for a group.

**Summary**

The core concepts of position rifle shooting have been developed. The target must be on the natural point of aim for the rifle, and that natural point of aim is adjusted by moving the body and the rifle as a unit. The neck and body are relaxed and comfortable. The rifle is supported as much as possible.
by the skeleton or bones with muscle activity kept to a minimum. The sights are brought to eye level, using adjustments in the placement of the butt plate or by adjusting the butt plate. Although target shooters may not use additional support, field shooters use as much support as possible to ensure vital hits and quick, clean kills.

We have learned four basic rifle shooting positions. The standing position is the least stable and the most demanding of the shooter. The kneeling position adds support. Sitting offers still more, and the prone position is very stable. Each position is defined by specific rules in competitive events, but field shooters can adapt and blend them to fit their needs. In addition to the positions, we have gained more practice in scoring targets and shooting under match conditions. Remember that good shooting is not genetic. It is a skill that must be learned. Practice will not make perfect unless the shooter is practicing the positions properly and with strong concentration on each shot. Perfect practice makes perfect.

**Summary Activities**

1. Score all targets and discuss the scores fired at each stage with the shooters. Have them record their scores and anything they have learned in the session in their shooting journal.
2. Plan a position shooting program involving practice sessions and some sort of competitive event for those who are interested in competitive target shooting.
3. Compare the series of targets fired in any given position over the course of the instruction. Discuss the stability of the position and the size of the groups or the scores shot using them. Note progress in the scores and encourage continued practice.
4. Suggest additional rifle learning activities for those who wish to continue in rifle shooting. Consider other types of shooting for those who wish to explore them.

**Sharing and Exhibit Ideas**

1. Demonstrate a selected rifle position for an interested audience, pointing out the stability of the position and any rules related to it.
2. Research a rifle shooting game and share it with your shooting group or another interested group.
3. Attend a rifle match and share the experience with other shooters in your group.
4. Display your shooting journal at an appropriate event.
5. Conduct a series of experiments on the shooting positions by shooting several groups or sets of targets with each one under controlled conditions. Report your results and conclusions in an appropriate manner.
6. Share what you have learned about position rifle shooting with an interested adult or another youth audience.
7. Develop a series of posters on position shooting and shooting safety for a local shooting club.
Rifle First Shot Fundamentals - Revised May 2009

Welcome
   Restrooms
   Class procedure

Lesson time
   1 hour

Objective of the session
   1. basic parts of rifle
   2. Understand functions of those parts
   3. dominate eye role
   4. understand basic range rules and etiquette
   5. Have fun while learning

Safety
   1  Eye protection
   2  Ear Protection

Parts of the gun

Rules of firearm safety
   1  Always keep the muzzle of the gun pointed in a safe direction
   2  Always keep the action open until you are ready to fire
   3  Always keep your finger off the trigger until you are ready to fire

Sight alignment
   Rear site
   Front site

Sight picture
   Rear Sight
   Front Sight
   Target

Dominate eye

Range rules / Range Commands

Shooters to the line

Shooting at the back of blank targets

Summary of what you covered
FUNDAMENTALS OF THE SHOT

1. AIMING
2. BREATH CONTROL
3. HOLD CONTROL
4. TRIGGER CONTROL
5. FOLLOW THROUGH

AIMING - Sight alignment is the relationship between the front and rear sight. With an aperture front sight, by aligning the front aperture in the exact center of the rear aperture, you have a proper sight picture. Consistent sight alignment is a little more difficult with a front post but must be the same for each shot for proper aiming. Sight picture is when you add the target to the sight alignment. Perfect sight alignment occurs when the target is centered in the front and rear sights. It is not necessary to hold the gun perfectly still to have a perfect sight picture. If you were looking through a long tube, you could keep a distant object in the center while still allowing the tube to move quite a bit as long as you don't let the tube get at an angle to the object. This is keeping perfect sight alignment while maintaining the sight picture. Keep both eyes open while aiming. Use an eye block if necessary. Don't try to aim too long. Take a break if you have to.

BREATH CONTROL - If you try to thread a needle or any other task requiring concentration, you will naturally hold your breath while doing it. The same thing happens when you aim a rifle. The need for breath control is not holding your breath too long. If you hold your breath longer than 8-10 seconds, you start starving your body for oxygen and the first part affected is your eyes. For most people the ideal time to get a shot off is after about six seconds.

HOLD CONTROL - NO ONE CAN HOLD A RIFLE PERFECTLY STILL!!!! Your individual ability to hold still will improve with proper position, practice, physical condition, proper nutrition, and better concentration. There is no magic formula for a good hold, just hard work and doing more things right. If your current level of ability is a six ring hold, you should be happy with any shot that is at least a six. If you try to shoot at a moving target when you see the 10 ring go past you will probably shoot a 3. ACCEPT YOUR
HOLD!!! As shooters get better they often forget this principle and let their desire for 10's get in the way of steady improvement. When this happens, scores usually go down instead of up and many times a really good shooter will give up shooting in disgust. Don't let this happen to you. Try to shoot each shot within your hold and improve, gradually.

TRIGGER CONTROL - Shooting a ten is easy. All you have to do is line the sights up with the target and make the gun fire without disturbing the sights. HA!! Think of trigger control as pushing a button with your finger. DO NOT SQUEEZE. This can make your whole hand move. When you have breath control, sight alignment, and hold all at their best, a steady increase of pressure on the trigger will cause the gun to go off within your hold. Trying to consciously make the gun go off at a particular time is a jerk and will pull your shot out of where' you deserve it to be. With practice, all four of these elements will happen within six or seven seconds of when you start the shot.

FOLLOW THROUGH - Every shooter is told from the very beginning to follow through. OK, so WHAT IS FOLLOW THROUGH? Don't move. If you could not move you would be either in the Olympics or dead. FOLLOW THROUGH IS MORE MENTAL THAN PHYSICAL. You must maintain your concentration on the aiming, hold, trigger, and breath after the shot has left the barrel. If you don't, your sub-conscious mind will shut down your concentration before the shot and the shot won't go where you wanted it to. For a physical trick, try to remember to not move your aiming eyeball when the shot breaks. If the eye doesn't move, nothing else will.