

Hunter Development Program

Workshop Lesson Guide

Workshop Title:

Rifle

Workshop Objective:

Participants will demonstrate the ability to use safe and proper procedures when transporting, loading firing and cleaning a rifle.

Topic	Time	Technical Information to cover	Suggested Activities
Firearm Safety Review	2 min	10 rules of firearm safety	Instructor lead, group discussion
	3 min	Workshop range rules	Explain range rules that will govern activities during the workshop
Know your firearm	2 min	Action types	Demonstration with training firearms
	3 min	Parts of a rifle	Point out different locations for safeties, special features that are possible or unique to manufacturers.
Know you ammunition	3 min	Parts of a cartridge	Have cutaway and disassembled cartridges available for inspection
	2 min	Caliber, bullet weight, type and range	Have examples of training rounds and empty boxes available as examples for discussion.
Transporting and carrying your firearm	2 min	Safe methods of transporting firearms in various vehicles and in the field	Demonstrate and discuss
Backstops and other precautions	3 min	How to select a safe shooting venues	Describe the requirements that are necessary to conduct safe rifle shooting activities with consideration given to bullet containment, ricochets, noise and lead exposure
Firing a rifle	2 min	Matching ammunition to the firearm	Practice with training ammo
	3 min	Mechanics of loading and unloading	Demonstration and guided practice using training ammo, clips, magazines and training guns
	5 min	Mechanics of shooting	Explain, demonstrate, discuss eye dominance, shooting positions, breath and trigger control

Topic	Time	Technical Information to cover	Suggested Activities
Sighting in	15 min	How to sight in a rifle	Use HE Tools 2011 for animations that explain the types of rifle sights and the sight picture. Explain the process of sighting in and making adjustments. Have participants sight in their rifle.
	10 min	Live fire	Set reactive targets at various known distances and allow participants to shoot using their sighted-in rifles from the position of their choice.
Cleaning a rifle	10 min	Process of Cleaning	Demonstrate field stripping and cleaning

HE Field Day Manual : Rifle

Introduction

Safe Handling and Operation

Firearm Safety

Parts of the Rifle

Sights

Action Types

Rifle Cartridges

Carrying a Rifle

Rifle Shooting Techniques

Breath and Trigger Control

Sight-In Procedure

Shooting Positions

Backstops and Other Precautions

Hunting Application

Vital Areas

Recognizing Shootable Distances

Live Fire Suggestions

1. Introduction

- A. Opening Statement
- B. Introduction of Instructors
- C. Purpose of the Course – to provide instruction to new shooters on how to safely and correctly handle a rifle at home, on the range, and in the field.

2. Safe Rifle Handling and Operation

- A. Firearm Safety – Discuss the 10 rules of firearm safety and provide examples for new shooters.
 - 1. Always point the muzzle in a safe direction.
 - 2. Treat every firearm as though it were loaded.
 - 3. Be sure of your target and what is in front of and beyond it.
 - 4. Keep your finger off the trigger until you are ready to shoot.
 - 5. Make sure your firearm is safe to operate and you have the correct ammunition.
 - 6. Never shoot at a hard surface or water.
 - 7. Do not run, jump or climb with a loaded firearm.
 - 8. Unload firearms when not in use
 - 9. Firearms and ammunition should be stored separately and safely.
 - 10. Avoid alcohol, prescription, over-the-counter, and other drugs before and during shooting.
- B. Parts of the Rifle – Point out and explain the parts of the rifle so that new shooters will be familiar with the location and terminology of the part. Parts to include are:

1. Muzzle
2. Sight
3. Barrel
4. Forestock
5. Magazine
6. Chamber
7. Trigger and Trigger Guard
8. Safety
9. Comb or Cheek Rest
10. Butt

C. Rifle Sights – Explain and point out the different kinds of sights and their differences, as well as how to adjust aim with each.

1. Open Sights
2. Aperture Sights
3. Telescopic Sights – Explain eye relief and “scope bite”

D. Action Types – Explain the differences between the actions and how they operate.

1. Bolt
2. Lever
3. Break or Hinge
4. Pump
5. Semi-automatic

D. Rifle Cartridges – Point out and explain the parts of a rifle cartridge, and explain the different kinds of bullets that are used for hunting purposes.

1. Parts of a Rifle Cartridge
 - a. Bullet
 - b. Casing/brass

- c. Primer
- d. Powder

2. Types of bullets – While there are many different choices for bullets, in the way they are designed and the materials they are composed of, it is required by Georgia law that all hunters must use expanding type rifle ammunition.

- a. Round Nose/ Flat Point – Blunt bullet shape that, while less aerodynamic, expands very easily upon impact.
- b. Pointed/ Spitzer – Bullets with a more pointed shape designed to be more aerodynamic and travel farther.
- c. Soft point – Bullets of any shape that have a copper jacket that leaves a portion of the lead core exposed at the tip of the bullet to aid in expansion upon impact.

E. Carrying a Rifle – Demonstrate the different carry methods and provide examples of when to use each.

- 1. Sling Carry – Good for long walks in open country, not recommend for thick brush.
- 2. Trail Carry – Do not use when walking behind someone or through snow or brush
- 3. Cradle Carry – Comfortable and reduces arm fatigue
- 4. Elbow or Side Carry – Comfortable, but least amount of muzzle control; not recommend when walking behind someone or through snow or brush.
- 5. Shoulder Carry – Good for walking beside or behind someone, do not use if someone is behind you.
- 6. Two-Handed or Ready Carry – Provides best control

3. Rifle Shooting Techniques

- A. Breath and Trigger Control – Explain and demonstrate breath and trigger control (squeezing instead of pulling) and explain how each aids in accuracy.
- B. Sight In Procedure – Explain the procedure for sighting in a rifle (3 shots at a time, adjusting the sights until all shots are hitting the bull's eye). Remind participants that bullets do not travel in straight lines, but in arcs; this is an important consideration for taking shots that are shorter than the distance the rifle was sighted in at, as well as distances greater than what the rifle was sighted in at.

If a rifle is sighted in at 100 yards, a shot at a target 50 yards away will hit slightly high of the bull's eye, and a shot taken at a target 150 yards away will hit just below the bull's eye.

- C. Shooting Positions – Explain and demonstrate the four rifle shooting positions; remind participants that when hunting they should always shoot from the most stable position possible. Explain to participants that muscles will easily fatigue, affecting the accuracy of a shot, and that the four positions rely on bone structure for support instead of muscles.

1. Standing
2. Sitting
3. Kneeling
4. Prone

- D. Backstops and Other Precautions – Remind students of safety rule #3 (Be sure of your target, and what is in front of and

beyond it) as well as rule #6 (never shoot at a hard surface or water) and how they especially apply to rifle shooting, as shots fired from a rifle can travel further than intended, and that shooting at a hard surface or water can cause ricochets. Remind them to always use a safe backstop and to shoot in a safe direction where no one or nothing will be accidentally hit.

Example from the Hunter Education Test: Which of these is a safe back stop?

1. A group of trees
2. A rocky hill side
3. A smooth hill side with no rocks present – correct answer

4. Hunting Application

- A. Vital Areas – It is the responsibility of every hunter to make a clean and ethical harvest of a game animal. Explain to participants that to make ethical shots requires practice before any hunting season begins and that they should be able to consistently shoot tight groups with the ammunition they plan to use for the particular game they will be pursuing. Explain that they should also be familiar with the game they will be hunting and the location of vital areas on the animal so that they know where to aim to make an ethical harvest.
- B. Recognizing Shootable Distances – Explain to students that just because rifles are capable of firing a bullet a long way, that not all shots should be taken. Explain that shots taken while hunting must be within the applicable range of the ammunition being used as well as within the range of each individual shooter's ability. Remind participants that ability only

increases with practice, and that it is their responsibility to make ethical decisions when they are hunting.

5. Live Fire Suggestions

While not required, these suggestions are provided to help reinforce the material covered in this lesson plan.

- A. If providing rifles for new shooters to use for a live fire class, provide rifles that have less than 15 ft-lbs of recoil (kick); this will make shooting a rifle for a new shooter much more enjoyable and allow them to the chance to shoot a rifle that they can reasonable handle.
- B. Offer participants the chance to shoot silhouette targets to illustrate shooting at greater distances (and shooting within ability).
- C. While shooting from a bench is always preferred for sighting in a rifle and for new shooters, if space and facilities allow, offer participants the chance to shoot from all four rifle shooting positions, as well as the chance to use shooting sticks to simulate hunting conditions in the field.
- D. Provide targets that are NOT in the shape of people, including “tombstone” and “zombie” targets; the focus of the Family Day at the Range Program is on imparting safe and accurate shooting skills and knowledge to new shooters, not self-defense or video game type shooting; there should be no reason to provide targets that resemble people. Bull’s eye and game animal targets are acceptable.

Hunter Development Program

Workshop Lesson Guide

Workshop Title:

Orienteering

Workshop Objective:

Participants will demonstrate the ability to use a compass, map and pacing to locate fixed points along a course.

Topic	Time	Technical Information to cover	Suggested Activities
Types of compasses	5 min	The parts of a compass: Needle, Base, Sights, Mirror Bezel	Have different types available for demonstration and discussion
		Azimuth v/s quadrant	Have participants practice conversions
How a compass works	10 min	How needle always points north and readings are taken based on the direction of the user's orientation to north	Set up markers for demonstration and guided practice.
		Sight alignment, bezel manipulation and taking a reading	
Measuring distance	20 min	Determine step/pace factor and applying to the distance walked	Set up a 100' course for step/pace factor determination. Practice exercise for application
Types of Maps	5 min	Line, topographic and aerial photographs	Discuss using examples
		Information found in the map legend.	
Using a map & compass	15 min	Determining a bearing from a map using a compass and distance on a map using the scale and a ruler	Demonstrate and practice

HE Field Day Manual : Orienteering

1. Introduction

2. How a Compass Works

Parts of a Compass

Azimuth Readings

Quadrant Readings

Measuring a Bearing

Declination

3. Measuring Distance by Walking

Determining Step/Pace Factor

Using Step/Pace Factor to calculate Distance Traveled

4. Using a Map

Topographic Maps

Understanding Scale

Map Legend Information

Taking Bearings from Maps

5. Skill Development Activity

Class Time: 1 hour

1. Introduction

A. Opening Statement

B. Introduction of Instructors

C. Purpose of the Course – to provide instruction and practice for workshop participants to develop the ability to use a compass, map and pacing to locate fixed points in the field while hunting.

2. How a Compass Works

A. Parts of a compass

1. Compass cover
2. Base plate
3. Black clinometer pointer *
4. Magnetic needle with red north
5. 2 X magnifier *
6. Scale in mm
7. Scale in inches
8. Bezel with 2 degree graduations
9. Liquid filled capsule
10. Meridian lines
11. Orienting arrow with red north end (Red Fred in the Shed)
12. Index pointer
13. Sighting line
14. Mirror
15. Sight

- B. Azimuth readings – An azimuth compass is a magnetic [compass](#) where the circumference of the card is divided into 360 degrees. North will always have a reading of 0 or 360 degrees, east will be 90 degrees, south will be 180 degrees and west will be 270 degrees. The bezel of your compass will be marked in two degree increments from 0 to 360 degrees.
- C. Quadrant readings – Like the bezel on an azimuth compass, the bezel of a quadrant compass is also divided into two degree increments; only now, north and south will be read as 0 and east and west will have a reading of 90 degrees. Expressing a bearing taken with a quadrant compass also requires the naming of the degrees measured in relationship to the cardinal points from which it was measured. Example: N 45 degrees W means that if you were facing north, you measured a bearing (angle) 45 degrees toward the west.
- D. Measuring a Bearing – The compass is used primarily to take bearings. A bearing is a horizontal angle measured clockwise from north (either magnetic north or true north) to some point (either a point on a map or a point in the real world). Bearings are used to accurately travel to a destination or to locate your position. If you are working from your map, it is called a map bearing and the angle you are measuring is the angle measured clockwise from true north on your map to this other point on the map. If you are taking a bearing off a real point on the landscape with a compass, you are using your compass to measure the angle clockwise from magnetic north to this point on the landscape. This is called a magnetic bearing. Remember that the bearing is measured clockwise. If you think of true north as 12 o'clock then a bearing to the right of that (1 o'clock) is greater than true north and a bearing to the left of True north (11 o'clock) is less than true north.
- E. Declination – One thing to remember is that a compass does not really point to true north, except by coincidence in some areas. The

compass needle is attracted by magnetic force, which varies in different parts of the world and is constantly changing. When you read north on a compass, you're really reading the direction of the magnetic north pole. A diagram in the map margin will show the difference (declination) at the center of the map between compass north (magnetic north indicated by the MN symbol) and true north (polar north indicated by the "star" symbol). Because the magnetic declination is computed at the time the map is made, and because the position of magnetic north is constantly changing, the declination factor provided on any given map may not be current. Contact the National Geophysical Data Center (NGDC) to obtain current and historical magnetic declination information for any place in the United States.

- F. Compass readings are affected by the presence of iron and steel objects. Be aware of items that may prevent an accurate reading such as pocket knives, belt buckles, pack frames, electrical lines, railroad tracks and so forth when using a compass in the field.

3. Measuring Distance by Walking

- A. Determining Step/Pace Factor –It is possible to measure distances traveled over ground simply by walking, counting the steps taken and applying a step/pace factor. A step/pace factor is an average measurement of distance that an individual covers with each step or pace that they take. A step is one stride while a pace is two strides. A step/pace factor is specific to the individual that is measuring a distance and can be influenced by factors such as topography, ground cover and weather conditions. The process described below will allow an individual to calculate a step/pace factor that is specific to them.
 - 1. Set out two marked points that are 100' apart. (ideally over uneven terrain)

2. Walk and count the steps/paces taken between the points five times. (keep a record of the steps/paces each time)
3. Add the steps/paces taken for a total.
4. Divide the total distance walked by the total number of steps/paces taken to calculate an average of the distance covered with each step/pace taken Example:

1 st pass	38 steps
2 nd pass	38.5 steps
3 rd pass	39 steps
4 th pass	38 steps
5 th pass	38.5 steps
Total	192

Distance covered 500' / 192 = 2.604' per step = S/PF

B. Using Step/Pace Factor to Calculate Distance Traveled – Once an individual's step/pace factor has been determined, it is a simple process to use it, along with a count of the number of steps/paces taken between any two objects to estimate the distance that has been traveled between the two objects. Using the S/PF that was calculated in the above example, let's assume that I counted 612 steps between my vehicle and deer stand. By multiplying the 612 step by a S/PF of 2.604, I can estimate that I have walked 1593.648 feet

4. Using a Map

A. Topographic Maps A topographic map tells you where things are and how to get to them. These maps describe the shape of the land. They define and locate natural and manmade features like woodlands, waterways, important buildings, and bridges. They show the distance between any two places, and they also show the direction from one point to another.

The topography is shown by contours. These are imaginary lines that follow the ground surface at a constant elevation; they are usually printed in brown, in two thicknesses. The heavier lines are called index contours, and they are usually marked with numbers that give the height in feet or meters. The contour interval, a set difference in elevation between the brown lines, varies from map to map; its value is given in the margin of each map. Contour lines that are close together represent steep slopes.

Natural and manmade features are represented by colored areas and by a set of standard symbols on all U.S. Geological Survey (USGS) topographic maps. Woodlands, for instance, are shown in a green tint; waterways, in blue. Buildings may be shown on the map as black squares or outlines. A road may be printed in red or black solid or dashed lines, depending on its size and surface. A list of symbols is available from the Earth Science Information Center (ESIC).

B. Understanding the Map Scale – Maps are drawn and produced using scaled measurements. The scale at which a map has been produced can be found in the map's legend and will appear as a ratio such as 1:24,000 which basically means that one inch on the map represents 24,000 inches on the ground. Often, you will find a bar with representative measurements (often miles) drawn on the map. Map scales give users the ability to estimate a distance to be traveled by measuring the distance on the map and then applying the scale to the measurement.

C. Map Legend Information- The legend of a map is a list of symbols used on the map and what the symbols represent.

D. Taking a Bearing from a Map - Follow the process below to take a bearing from a map:

1. Draw a straight line on the map passing through your location and your destination and extending across any one of the map borders.
2. Center the compass where your drawn line intersects the map border, align the compass axis N-S or E-W with the

border line, and read on the compass circle the true bearing of your drawn line. Be careful to get the bearing in the correct sense because a straight line will have two values 180° apart. Remember north is 0, east is 90, and so on.

3. To use this bearing, you must compensate for magnetic declination. If the MN arrow on the map magnetic declination diagram is to the right of the true north line, subtract the MN value. If the arrow is to the left of the line, add the value.

5. Skill Development

- A. Set up five points that form a geometric shape and have participants practice measuring the bearings and estimating distances between the points.
- B. Have maps available with “you are here” and “you want to go here” points marked. Give participants a compass and rule. Have them determine bearing and distance to be traveled to reach the point.