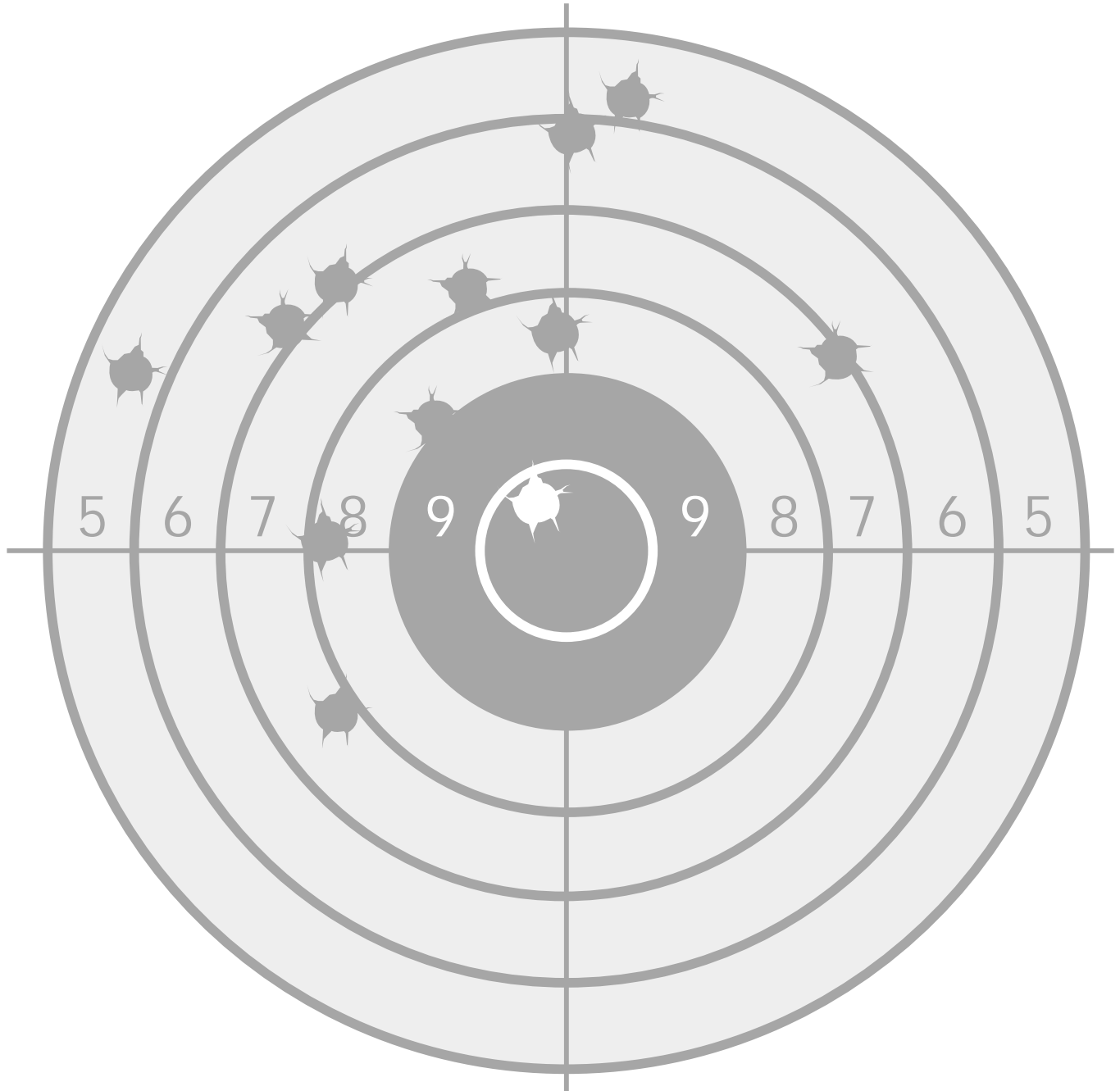




16 U.S.C. 707

Air Pistol

Pennsylvania 4-H Shooting Sports Guide



PENNSSTATE



College of Agricultural Sciences • Cooperative Extension



Air Pistol

Safety, Responsibility, and Shooting Sports

The 4-H shooting sports program will teach you how to safely be involved in a shooting activity. Being cool doesn't require senseless actions that could put you or our friends in danger. Given the recent tragedies involving guns and schools, the 4-H shooting sports program should help you understand and promote the safe, responsible, and ethical use of firearms. Always practice the safety guidelines outlined for you by your adult leader.

Remember that your shooting sports project is a leisure time activity, and your firearm or archery equipment should never be taken to school—it should be used only as part of your project experience.

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4-H Shooting Sports Program

Are you interested in firearms? Then the 4-H Shooting Sports Program is for you.

The Shooting Sports Program is unique because it is oriented to the individual. Shooting is an activity that can be practiced throughout life, and the entire family can participate.

However, shooting is a skill that requires self-discipline, concentration, and individual effort. It also can require considerable financial resources. It is important that you keep a good record of what you have learned, and how you learned it. You also should keep a record of firing, leadership roles, expenses, property and equipment, and other aspects of your shooting sports experience.

This workbook contains several forms that will help you properly record you activities. Your shooting experience will mean more to you when you look at your records and see how you have progressed from a beginner to a skilled shooter!



Parental Permission Statement

As parent or legal guardian I hereby give permission for my child, _____, to participate in the 4-H Shooting Sports Program.

I understand the safety requirements and the discipline required in this project. I will support my child in fulfilling the requirements of this program.

Name: _____

Address: _____

Phone: _____

Signature: _____ Date: _____



Things to Do and Learn in this Project

Have your leader initial each activity when completed.

Level 1

I Will:

1. Know the history of the pistol. _____
2. Know and practice shooting safety rules. _____
3. Know and practice shooting range rules. _____
4. Know and practice shooting range procedures. _____
5. Know the parts of the pistol and what they do. _____
6. Know proper sight alignment and sight picture. _____
7. Know and practice proper shooting techniques. _____
8. Develop marksmanship skills. _____
9. Develop and practice self-discipline while shooting. _____
10. Help other members as a "coach." _____
11. Complete project workbook. _____
12. Participate in one 4-H shooting match. _____
13. Display project at 4-H Roundup. _____

Level 2

I will:

1. Know the different types of pistols. _____
2. Know different types of ammunition and components. _____
3. Show progress in marksmanship skills. _____
4. Know and practice good gun care procedures. _____
5. Give a presentation on pistol shooting. _____
6. Serve as a Teen Leader to assist the instructor. _____

I promise to complete these goals to the best of my ability.

4-H Member: _____

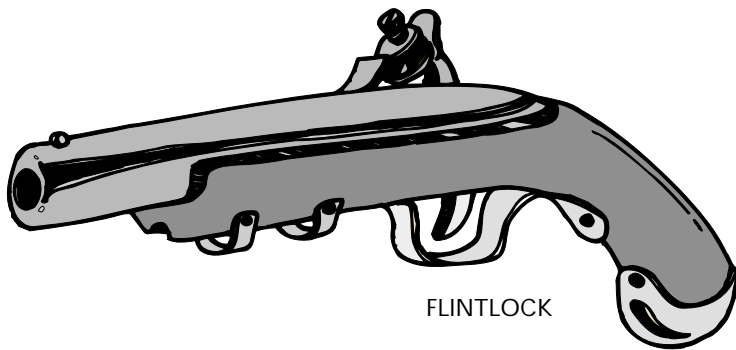
Signature: _____

Date: _____

History of the Pistol

When firearms were first invented, they were large and difficult to handle. Operating them took two hands—and sometimes even two people. As firearms were refined, they became smaller. Eventually shooters could hold them to their shoulders and use both hands to fire. Soon, smaller firearms that could be fired with one hand were developed. These firearms were called pistols. Historians are not in total agreement about where the name pistol came from, but Pistoia, a small Italian town, had a thriving business of producing these small firearms in the fifteenth and sixteenth centuries. The name “pistol” is believed to have come from there.

The history of the pistol reflects the history of how gunpowder in ammunition is ignited. The first type of ignition, used in the fifteenth century, was called the “matchlock.” It touched a burning match or wick to the priming powder to fire the gun. In the sixteenth century, German inventors developed the “wheel lock” or “flintlock.” It rubbed a wheel against flint to create sparks and ignite the powder, much like a cigarette lighter operates today. The “flintlock” was the main method of firing a gun until the 1800s. Flintlocks are still used in shooting sports.

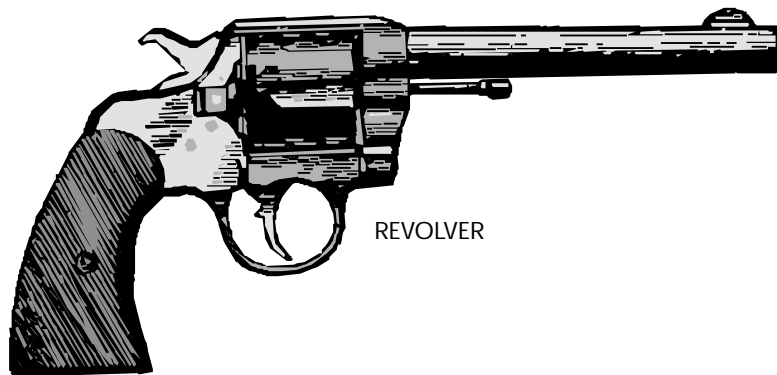


trigger hammer, creating a spark, which in turn ignites the powder and fires the gun. This was much more reliable and was used until the 1860s

In 1836, Samuel Colt invented the first successful repeating pistol. He developed a revolving cylinder pistol, which became known as the “revolver,” using percussion caps. The revolver was later modified to use metallic cartridges, which were developed during the U.S. Civil War. Colt single-action revolvers became famous as the “cowboy’s gun” used in books and movies about the settlement of the western United States.

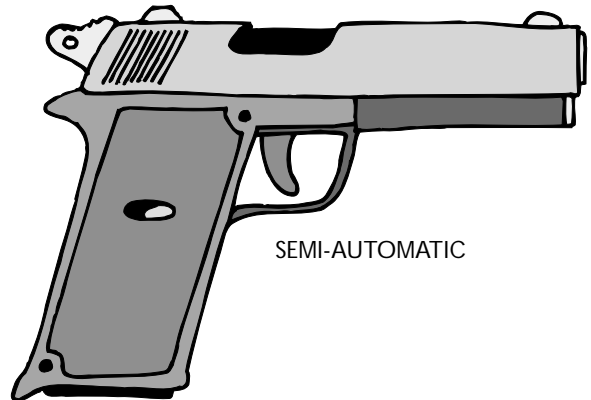
The famous firearms inventor John Browning made the last major innovation of the pistol in the late 1800s. His invention was the self-loading repeating pistol, which is sometimes mistakenly

referred to as “automatic.” This type of pistol is properly known as “auto-loading” or “semi-automatic,” because the trigger must be released between firing each cartridge. The most famous of these is the Colt Model 1911 .45 caliber pistol, used for many years by the U.S. military.



Many different types of pistols are available today, including a wide variety of revolvers, semi-automatics or self-loading pistols, hinged actions, bolt actions, and muzzle-loaders. These guns are named by how they are loaded and operated.

Different pistols use different types of ammunition. Modern pistols use conventional metallic cartridge ammunition. These are either rim-fire cartridges, such as .22 caliber cartridges, or center-fire, such as most larger-caliber cartridges. Muzzle-loaders use black powder and a separate bullet. Air pistols use compressed air or carbon dioxide (CO₂) to propel pellets or BB's.



In this 4-H project, we will be using a bolt-action, single-shot compressed air pistol with pellets to learn how to become safe shooters and good marksmen.

The first and most important things you must learn and practice are the techniques of safe gun handling. The principles of gun safety and the techniques of good marksmanship are the same whether you are shooting an air pistol or a conventional firearm.

The first and most important things you must learn and practice are the techniques of safe gun handling.



Activity

Interview someone to learn how guns have been used in your family or community.




What Have I Learned?

History of the Pistol

1. Where did the name "pistol" come from? _____
2. What type of firearm is properly called a "pistol"? _____
3. When were the first pistols developed? _____
4. Name the different types of pistols that were developed, and about what time in history they appeared.
 - a. Name _____ Time in history _____
 - b. Name _____ Time in history _____
 - c. Name _____ Time in history _____
 - d. Name _____ Time in history _____
 - e. Name _____ Time in history _____
 - f. Name _____ Time in history _____
5. What one feature of the pistol marked the development of the different types? _____

6. Who developed the first practical repeating pistol? _____
7. What type of pistol was this first successful repeater? _____
8. What type of pistol did John Browning develop? _____
9. What type of pistol was invented in Germany in the sixteenth century? _____



Shooting Safety and Range Rules

T.A.B.

There are three basic shooting safety rules you always must follow, no matter what kind of shooting you are doing:

Treat every gun as though it is loaded, and keep your finger off the trigger until you are ready to shoot.

Always point the gun in a safe direction.

Be sure of your target and backstop.

If you always follow these three basic rules, it is very unlikely that you would ever cause a shooting accident.



Range Rules

These basic rules for firing ranges must always be followed.

1. Obey all commands of the range officer. The range officer is in charge.
2. Never handle firearms until you are told to do so by the range officer.
3. Never load or fire until you are told to do so by the range officer.
4. Never fool around or indulge in horseplay on the firing range.
5. Make sure your firearm is unloaded with action open until you are ready to fire on the firing line.
6. Always wear safety glasses while you are on the range.



Range Commands

- “Shooters and coaches to the line.”
- “Is the line ready?” (Coaches respond by station number: “Station 1, ready.”)
- “You may charge and load your pistols.”
- “Commence firing.”
- “Cease fire.”
- “Actions open, guns on the bench, make the range safe!”



What Have I Learned?

1. What are the three basic rules of shooting safety?

1. _____

2. _____

3. _____

2. What is the job of the range officer? _____

3. Why do we need range rules? _____

4. Why should the action of a firearm always be open except when ready to fire?

5. True or False: "Air pistols are not real guns." _____

6. What are the basic range commands?

1. _____

2. _____

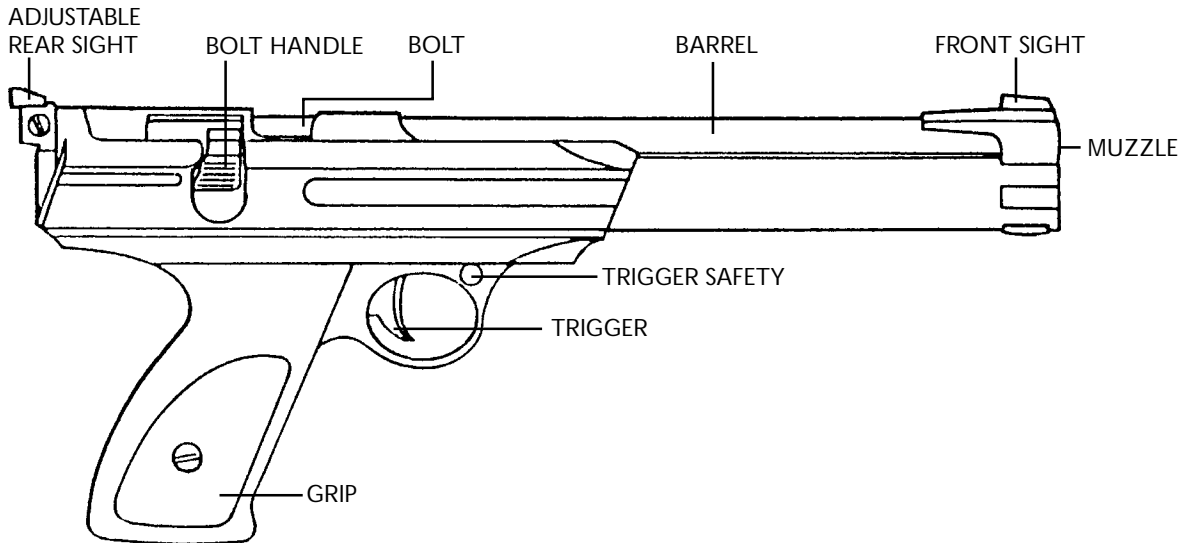
3. _____

4. _____

5. _____

6. _____

The Parts of a Single-Shot Pistol

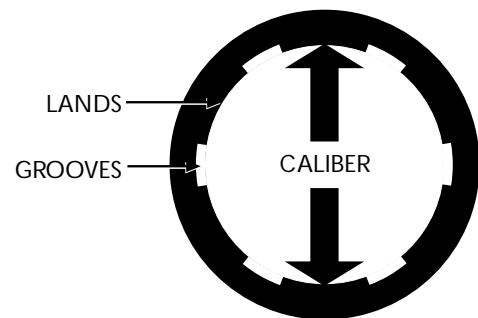


Frame

The frame of a single-shot pistol is the backbone to which all other parts are attached. The grip panels are attached to lower rear portion of the frame and are usually composed of wood, rubber, or molded plastic. The trigger safety is a mechanical device designed to reduce the chance of an accidental discharge. Since safeties, like all mechanical devices, can malfunction, the prevention of an accident is ultimately the responsibility of the individual who is handling the pistol.

Barrel

The barrel is the metal tube through which a pellet passes on its way to a target. The front end of the barrel where the pellet exits is called the muzzle. The inside of the barrel is called the bore, and it has spiral groove cut into it. These grooves and the ridges of metal in between them are called "rifling." Rifling makes a pellet spin as it leaves the barrel, so that it is more stable in flight and travels more accurately. The front sight is located on top of the barrel near the muzzle and, together with the rear sight, is used to aim the pistol.

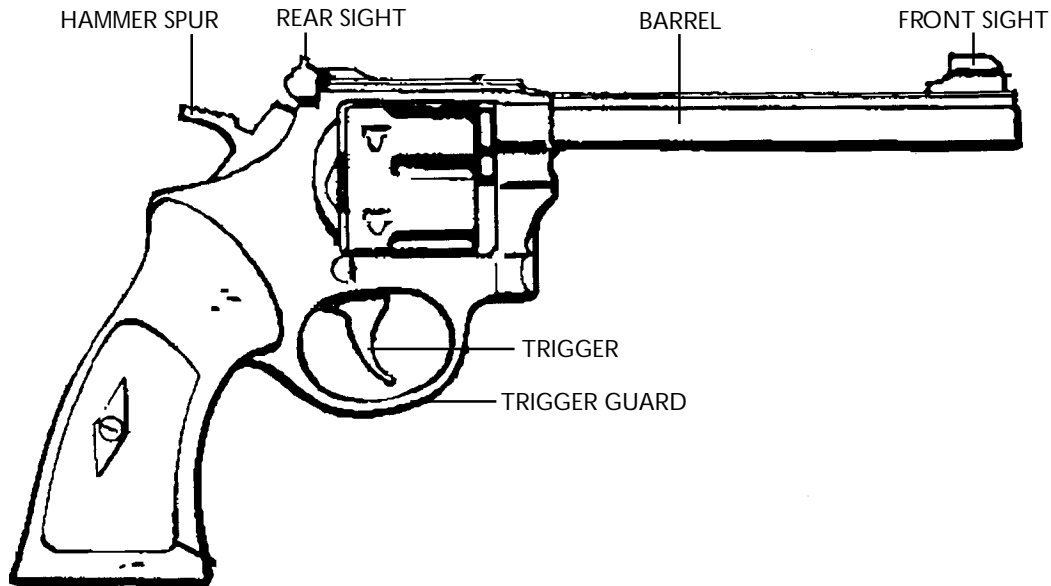


THIS BARREL CROSS-SECTION SHOWS THE LANDS AND GROOVES, WHICH CREATES THE RIFLING EFFECT

Action

The bolt and bolt handle open the chamber at the rear of the barrel where the pellet is inserted. The trigger is located on the underside of the frame. When the trigger is pulled, it activates the firing mechanism which, when released, causes the firing of the pellet.

The Parts of a Revolver



Frame

The frame of a revolver is the backbone to which all other parts are attached. The grip panels are attached to lower rear portion of the frame and are usually composed of wood, rubber, or molded plastic. The trigger guard is located on the underside of the frame and is designed to protect the trigger in order to reduce the possibility of an unintentional firing. On top of the frame is the rear sight, which is used in the aiming process.

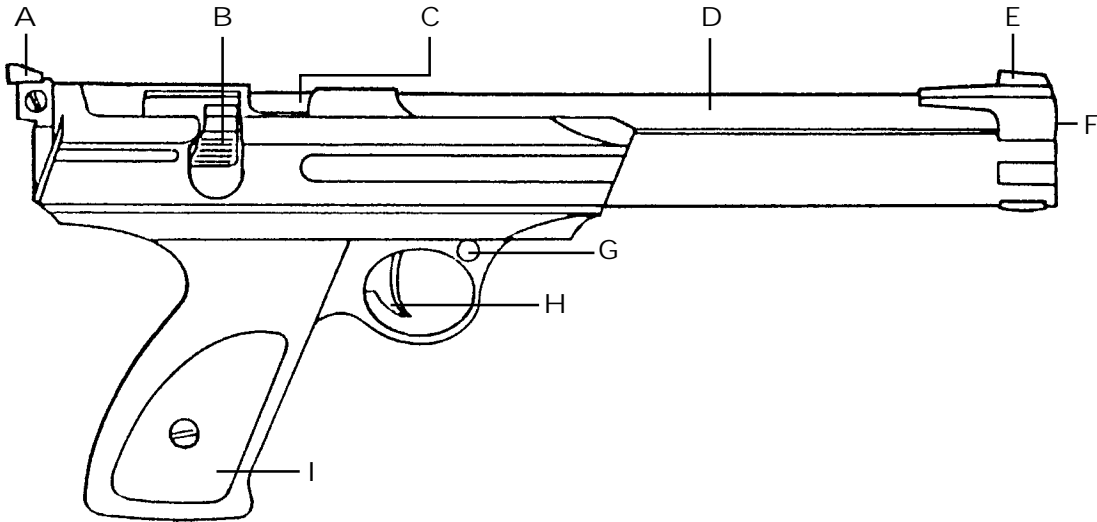
Barrel

The barrel is the metal tube through which a bullet passes on its way to a target. The front end of the barrel where the bullet exits is called the muzzle. The inside of the barrel is called the bore, and it has spiral groove cut into it. These grooves and the ridges of metal in between them are called "rifling." Rifling makes a bullet spin as it leaves the barrel, so that it is more stable in flight and travels more accurately (see the diagram on page 10). The front sight is located on top of the barrel near the muzzle and, together with the rear sight, is used to aim the pistol.

Action

The action is a group of moving parts used to load, fire, and unload the pistol. The trigger is located on the underside of the frame. The hammer is attached to the rear of the frame. When the trigger is pulled, it activates the hammer, which in turn causes the firing pin to strike and fire the cartridge.

~~~~~  
What Have I Learned?



1. Name the basic parts of your pistol:

- |          |          |
|----------|----------|
| A. _____ | F. _____ |
| B. _____ | G. _____ |
| C. _____ | H. _____ |
| D. _____ | I. _____ |
| E. _____ |          |

2. What is the purpose of the barrel? \_\_\_\_\_
3. What is the purpose of the safety? \_\_\_\_\_
4. What are the sights used for? \_\_\_\_\_
5. What is the purpose of the trigger? \_\_\_\_\_
6. What kind of ammunition will we use in this project? \_\_\_\_\_
7. What substance gives the bullet its power? \_\_\_\_\_
8. What type action does the air pistol have? \_\_\_\_\_
9. What charges the pistol so it will fire? \_\_\_\_\_
10. What is "rifling" in the barrel? \_\_\_\_\_

## Sight Alignment and Trigger Control

For this starting procedure, you will use the bench rest position with support.

### Holding the Pistol

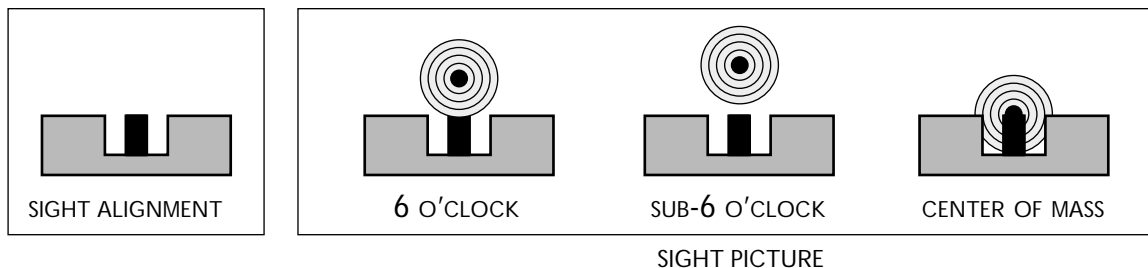
You will begin using a two-hand hold with the air pistol. Keeping the gun pointed in a safe direction, grip the pistol with your shooting hand, and support that hand with the other. Your instructor will demonstrate and coach you in this hold.

### Breath Control

A very important part of good shooting is controlling your breathing as you fire. As you align the sights on the target, breathe normally. As you apply pressure to the trigger in a controlled squeeze, hold your breath for 6 to 10 seconds while moving the trigger to the rear until the gun fires. Then breathe normally again. If you cannot fire before you run out of breath, stop the trigger movement to breathe again, then hold your breath again to complete the shot. If you have lost your sight alignment, lower the pistol and start the sequence over again. Practice breath control while dry firing.

### Align Sights on Target

Sight alignment is the relationship of the front and rear sights. The eye must be lined up with the front and rear sights and sights positioned so that their alignment is in the proper relationship with the target. Examples of variations of a correct sight picture are included below.



### Trigger Control

Using the first joint of your index finger, gently but firmly apply pressure to the trigger. Move the trigger to the rear with a controlled squeeze until the pistol fires without disturbing the sight alignment. Proper sight alignment is when the rear sight is aligned with the front sight and target as shown.

### Follow Through

In shooting, “follow through” means to hold your shooting position and sight alignment for a count of two after you fire the gun. Your instructor will demonstrate and coach you on this.

This is the same principle as throwing a ball or swinging a baseball bat—you don't stop your swing, do you?

---

## Shooting for Groups: Two-Hand Hold

A series of shots that appear together on a target is known as a group. Shooting for groups requires aiming at the same spot on the target for all shots. Hitting the center of the target is not important when shooting for groups. When group size is consistently small, the shooter will adjust the sights to move the group onto the center of the target.

### Stance

Use the “video-game” stance. Face the target straight away, with your weight balanced evenly on both feet. Extend your arms full length.

### Breath Control

A very important part of good shooting is controlling your breathing as you fire. As you align the sights on the target, breathe normally. As you apply pressure to the trigger in a controlled squeeze, hold your breath for 6 to 10 seconds while moving the trigger to the rear until the gun fires. Then breathe normally again. If you cannot fire before you run out of breath, stop the trigger movement to breathe again, then hold your breath again to complete the shot. If you have lost your sight alignment, lower the pistol and start the sequence over again. Practice breath control while dry firing.

### Sight Alignment

Raise your gun to the target to align the sights.

### Trigger Control

Using the first joint of your index finger, gently but firmly apply pressure to the trigger. Move the trigger to the rear with a controlled squeeze until the pistol fires **without disturbing the sight alignment**. Proper sight alignment is when the rear sight is aligned with the front sight and target as shown.

### Follow Through

In shooting, “follow through” means to hold your shooting position and sight alignment for a count of two after you fire the gun. Your instructor will demonstrate and coach you on this.



### Firing Sequence

1. Charge and load your pistol
2. Align the gun sights
3. Raise gun to target and align sights on target
4. Move trigger to rear in a controlled squeeze until gun fires
5. Follow through
6. Lower the gun to bench with action open

### Sight Adjustment

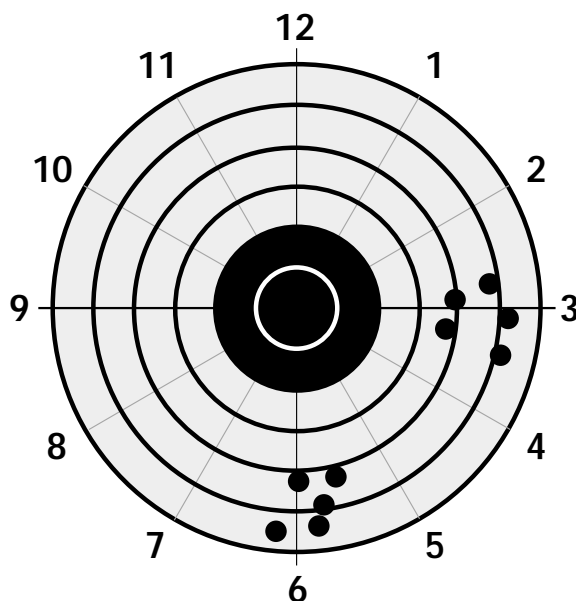
Once you are shooting a small group, you have developed precision in your shooting technique. Now we can adjust the sights to make the pellet hit the center of the target, and you will then develop accuracy.

Good marksmanship is the combination of precision in shooting groups and accuracy in placing the group in the center of the target. You must learn to shoot groups precisely before you can shoot accurately.

If you are shooting a group, and the group is not in the center of the target, **simply move the rear sight in the direction you want the group to move on the target.** If a group is hitting the target high, move the rear sight down; if the group is hitting the target to the left, move the sight to the right.

### Calling the Shot

If you use good shooting techniques in the firing sequence, the shot will surprise you when it goes off. As you develop your shooting skills, you will soon recognize where your sights were aligned on the target at the instant it fired. This is known as "calling the shot." This is done by referring to the target as a clock face as shown in the illustration.



IF THE BULLET HOLES WERE ON THE RIGHT SIDE OF THE TARGET, WE WOULD CALL THEM AT "THREE O'CLOCK."

IF THE BULLET HOLES WERE LOW ON THE TARGET, WE WOULD CALL THEM AT "SIX O'CLOCK."

You will be surprised at how soon you will be able to call your shots.

~~~~~  
What Have I Learned?

1. Draw the following sight pictures:



CENTER OF MASS



SIX O'CLOCK



SUB-SIX O'CLOCK

2. Why do we try to shoot a “group”? _____

3. Why do we move the trigger to the rear with a controlled squeeze instead of yanking or jerking the trigger to make the gun fire?

Shooting with the One-Hand Hold

After you have developed some skill and proficiency using the two-hand hold for firing, you can begin to develop the ability to shoot accurately using only one hand to hold the pistol.

Stance

When you use the two-hand hold, you face the target squarely. When you use the one-hand hold, you stand facing 60 to 90 degrees to the left of the target if you are a right-handed shooter, or to the right of the target if you are a left-handed shooter. Extend your shooting hand straight out toward the target. (Your instructor will demonstrate this and help you get into the proper position.) You should now be looking at the target over the “V” formed by the thumb and first finger of your shooting hand. If you are not aligned with the target without tension in your arm, shift your rear foot until your arm is aligned with the target. Put your nonshooting hand in your pocket or on your belt.

To establish your “natural point of aim,” close your eyes for a few seconds with your arm extended. When you open your eyes, your arm should be pointing at the target. If it is not, shift your feet. Repeat this exercise until you have learned to correctly position your feet so you automatically look at the target.

One-Hand Grip

Now that you have your proper stance, place the pistol in your shooting hand and grip it firmly with the thumb and middle fingers of the hand. Do not grip the pistol too tightly, because this will cause your arm to get tired and start to shake. Do not place your finger on the trigger until you are ready to shoot.

Firing

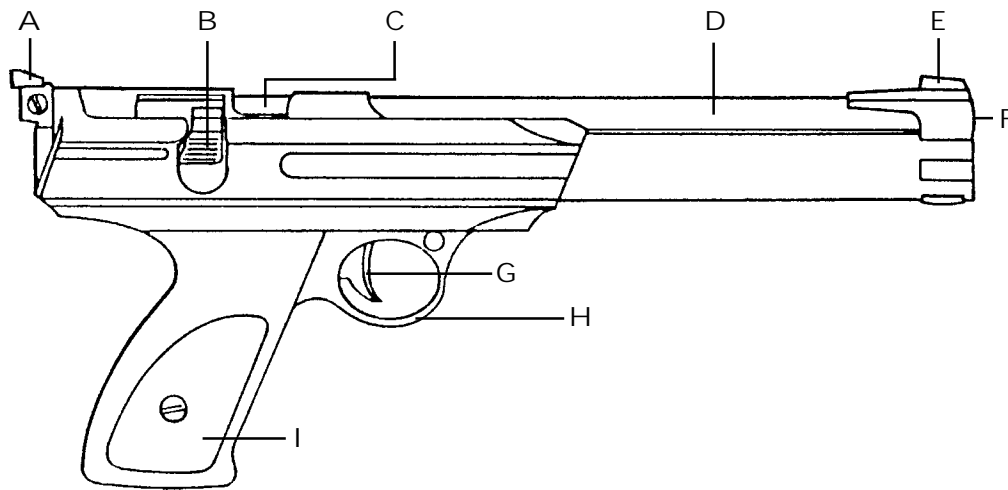
The firing sequence is the same as with the two-hand hold: align the sights on the target, then move the trigger to the rear with a controlled squeeze. After the gun fires, follow through and lower the pistol to the table with the action open.

Practice dry firing until you feel comfortable with the one-hand hold.

You will notice immediately that the one-hand hold is not as steady as shooting with two hands, but with proper practice you will soon develop more skill.

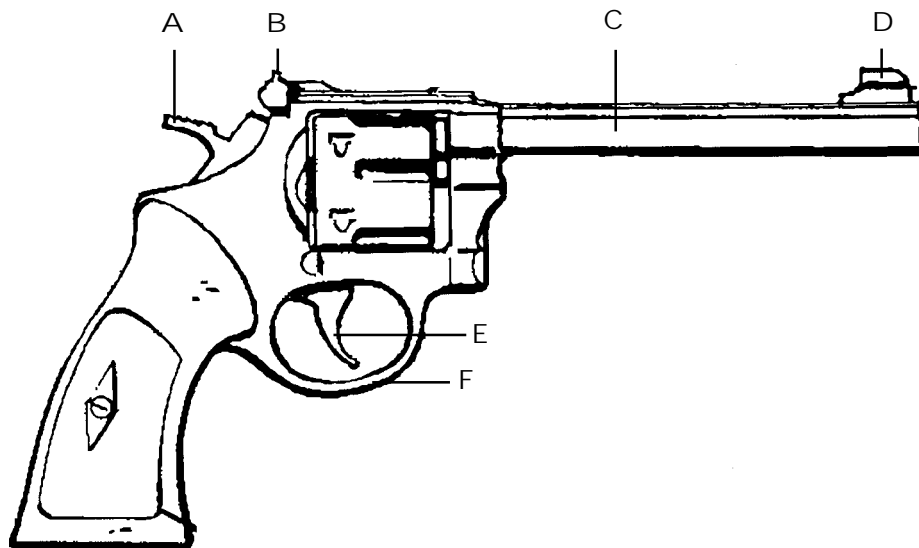


Parts of Pistols: What Have I Learned?



1. Name the parts of a single-shot pistol:

- | | |
|----------|----------|
| A. _____ | F. _____ |
| B. _____ | G. _____ |
| C. _____ | H. _____ |
| D. _____ | I. _____ |
| E. _____ | |



2. Name the parts of a revolver:

- | | |
|----------|----------|
| A. _____ | D. _____ |
| B. _____ | E. _____ |
| C. _____ | F. _____ |

Activity: Air Pistol Word Search



Can you find these words in the letters above? Circle the answers.

ACTION

AIM

BARREL

BOLT

CEASE FIRE

CONTROL

FLINTLOCK

GRIP

HANDLING

MARKSMANSHIP

MUZZLE

PELLET

PRACTICE

RANGE OFFICER

REVOLVER

RIFLING

SAFETY

SHOOT

SIGHT

STANCE

TARGET

Note: Answers on page 22.

Project Summary and Story

Write a short story of what you accomplished during this project. Did you achieve all your goals? What was the most interesting part of this project? What did you enjoy the most? Did you shoot in competition? Did you win any awards?

Ribbon Award: _____

Evaluated by: _____

Date: _____

Word Search Solution



(Over, Down, Direction)

- | | |
|----------------------|------------------------|
| ACTION (6,2,SW) | PELLET (2,7,NE) |
| AIM (2,4,SE) | PRACTICE (12,8,N) |
| BARREL (8,14,W) | RANGE OFFICER (13,1,S) |
| BOLT (6,13,NE) | REVOLVER (4,12,E) |
| CEASEFIRE (9,6,SW) | RIFLING (14,3,S) |
| CONTROL (6,6,SE) | SAFETY (6,4,E) |
| FLINTLOCK (10,1,W) | SHOOT (11,2,W) |
| GRIP (2,9,E) | SIGHT (15,5,N) |
| HANDLING (8,9,NW) | STANCE (1,9,S) |
| MARKSMANSHIP (1,8,E) | TARGET (6,10,SW) |
| MUZZLE (15,13,N) | |



4-H Activities Report

This report will help you keep a better record of your club activities. Fill it in as you complete each assignment. Refer to this record when you are entering county, state, and national programs. Ask your local leader to explain these programs to you.

Projects taken _____

Number of 4-H'ers you helped with projects _____

Offices held _____

In what way? _____

Club _____

Check activities in which you participated

County _____

Camp _____

Committees _____

Club or county tours _____

Club picnic _____

“Show-and-tells” or presentations given to:

County fair _____

Local club _____

Achievement programs _____

County _____

Roundup _____

Region _____

Leadership training _____

State _____

State 4-H Capital Days _____

Others _____

Penn State 4-H Achievement Days _____

News articles _____

Pennsylvania Farm Show _____

Radio _____

National 4-H Week _____

TV _____

State Ambassador Conference _____

Displays or exhibits _____

Quiz bowls _____

Judging _____

Things done to improve your health _____

Others _____

Community service or citizenship work done:

By myself _____

With club _____

Number of meetings your club(s) held this year _____

Number you attended _____

Number of new persons you encouraged to join 4-H _____

Year: _____

Name: _____

Address: _____

County: _____

Phone: _____

Name of 4-H club: _____

Club leader(s): _____

Shooting coaches: _____



4-H Club Motto
"To make the best better"

4-H Club Pledge
I pledge
my head to clearer thinking,
my heart to greater loyalty,
my hands to larger service, and
my health to better living, for
my club,
my community,
my country, and
my world.

4-H Club Colors
Green and White

Prepared by Michael J. Martin, special assistant to the vice president for Outreach and Cooperative Extension, and Richard F. Little, 4-H leader in Montour County.

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