

# Pennsylvania

4-H SHOOTING SPORTS PROGRAM

## Air Rifle



PENNSTATE



College of Agricultural Sciences • Cooperative Extension

# 4-H SHOOTING SPORTS PROGRAM

## Project Workbook—AIR RIFLE

Year \_\_\_\_\_ Name \_\_\_\_\_

Address \_\_\_\_\_  
STREET OR RR TOWN STATE ZIP

Phone ( \_\_\_\_\_ ) \_\_\_\_\_ # of years you have been in 4-H (including this year) \_\_\_\_\_

Name of your 4-H club \_\_\_\_\_

Name of your 4-H leader(s) \_\_\_\_\_

Name(s) of your shooting coach(es) \_\_\_\_\_

# of meetings your club held \_\_\_\_\_ # of meetings you attended \_\_\_\_\_



This workbook was compiled and produced for use in the Pennsylvania 4-H Shooting Sports Program by Robert O. Hobbes, County Extension Director, Wyoming County Cooperative Extension Service, 102 Warren Street, Tunkhannock, PA 18657.



## INTRODUCTION TO 4-H SHOOTING SPORTS PROGRAM

The 4-H Shooting Sports Program may include anything related to firearms that is of interest to the participant.

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

Because shooting is a skill that requires much self-discipline, concentration, individual effort, and can require considerable financial resources, it is important that the 4-H member keep good records as to what is learned, how it was learned, a record of firing, leadership roles, expenses, property inventory, and other essential facts. This workbook contains several forms that will enable the 4-H'er to properly record his or her actions.

Keep good records of your shooting activities. Your shooting experience will mean more to you when you look at the records and see your progress from beginner to a skilled shooter!

## My Personal Goals in This Shooting Sports Project

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Things I would like to learn and do:	Members initial	Leaders initial
Learn what TAB stands for _____		
Learn how to handle a firearm safely _____		
Learn the range rules _____		
Learn parts of the rifle _____		
Learn functions of the various parts _____		
Learn what proper sight picture is _____		
Learn the four target shooting positions _____		
Learn what breath control means _____		
Learn what trigger control means _____		
Learn what follow through means _____		
Learn what the four types of rifle sights are _____		
Learn what the range officer does _____		
Learn what the range commands are _____		
Learn how to call the shot _____		
Display project book and safety poster at roundup or fair _____		



**4-H Shooting Sports Project  
Parental Permission Statement**

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As parent or legal guardian, I hereby give permission for my  
son/daughter \_\_\_\_\_

to participate in the 4-H Shooting Sports Program. I understand the  
safety requirements and the discipline required in these projects.

I will provide help and support for my son/daughter to complete the  
requirements of this program.

Signed \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

Phone \_\_\_\_\_

Date \_\_\_\_\_

## Air Rifle Worksheet #1

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### SHOOTING SAFETY AND RANGE RULES

There are three basic shooting safety rules you must always follow, no matter what gun you are shooting.

1. Treat every gun as though it were loaded and keep your finger off the trigger until you are ready to shoot.
2. Always point the gun in a safe direction.
3. Be sure of your target and backstop.

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

### RANGE RULES

There are some basic rules for firing ranges that must always be followed:

1. Obey all commands of the range officer—he is the boss!
2. Never handle firearms until told to do so by the range officer.
3. Never load and/or fire a firearm until told to do so by the range officer.
4. Absolutely no horseplay on the firing range.
5. Always be sure your firearm is empty and with the action open until told to do otherwise by the range officer.
6. The command to “cease fire” means exactly that: open the action immediately and be sure the gun is unloaded.
7. The range officer has the authority to remove any shooter from the firing line for disobeying rules.
8. Always use eye and ear protection while on the range.
9. Keep your finger off the trigger until you are ready to shoot.

## Air Rifle Worksheet #2

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### KNOW YOUR RIFLE AND ITS PARTS

**1. Name the basic parts of your rifle:**

- |          |          |          |          |
|----------|----------|----------|----------|
| a) _____ | e) _____ | i) _____ | m) _____ |
| b) _____ | f) _____ | j) _____ | n) _____ |
| c) _____ | g) _____ | k) _____ | o) _____ |
| d) _____ | h) _____ | l) _____ | p) _____ |
|          |          |          | q) _____ |

**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 is the rifling in the barrel?** \_\_\_\_\_  
\_\_\_\_\_

**7. What does the rifling do to the bullet or projectile?** \_\_\_\_\_  
\_\_\_\_\_

**8. What kind of ammunition do you use in this rifle?** \_\_\_\_\_  
\_\_\_\_\_

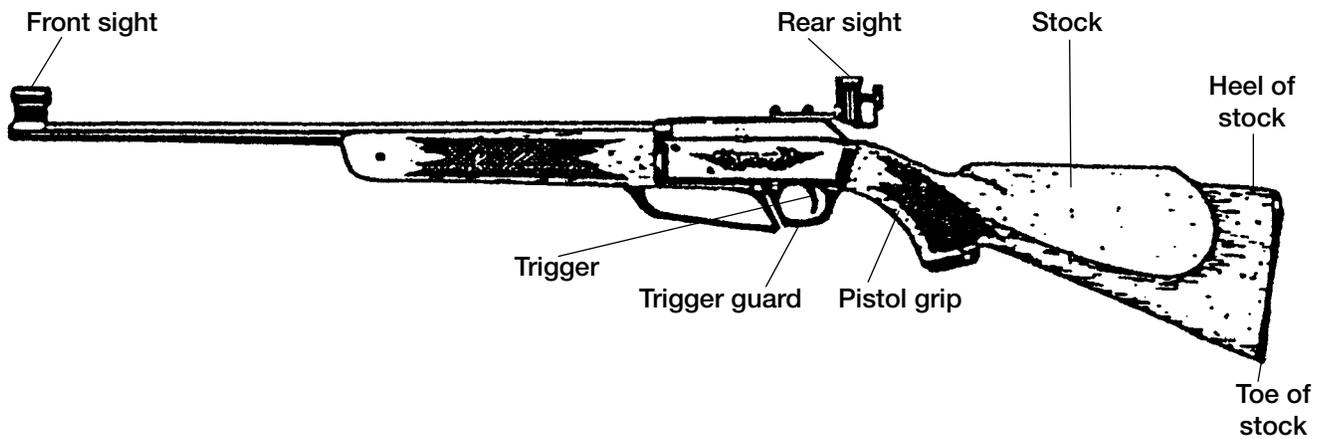
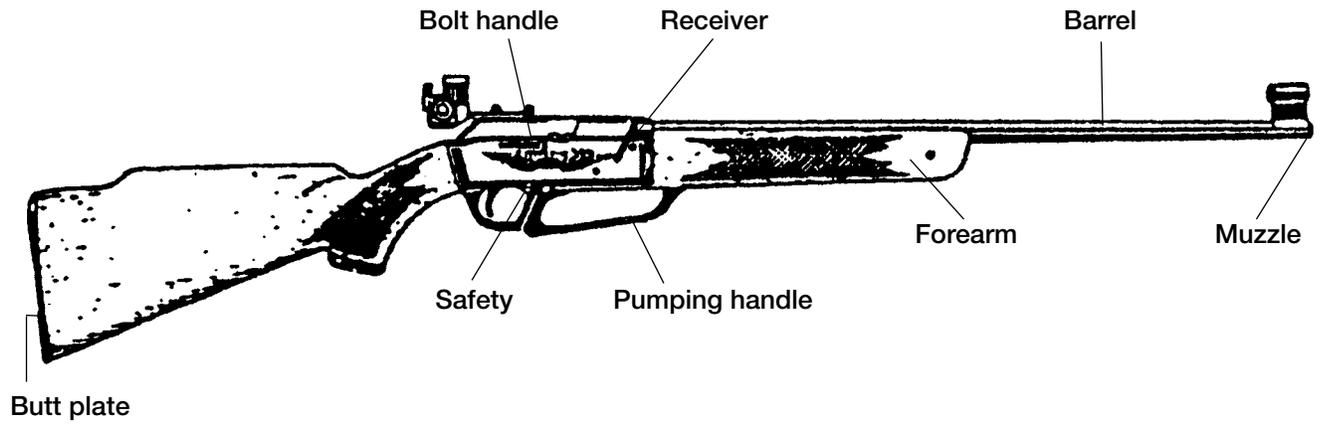
**9. What causes the bullet to go out of the barrel?** \_\_\_\_\_  
\_\_\_\_\_

**10. What does the bolt in your rifle do?** \_\_\_\_\_  
\_\_\_\_\_

**11. What is the diameter of the pellet you are using in your air rifle?** \_\_\_\_\_  
\_\_\_\_\_

**12. Why do you have a trigger guard on your rifle?** \_\_\_\_\_  
\_\_\_\_\_

THE PARTS OF THE RIFLE THAT YOU SHOULD KNOW ARE SHOWN BELOW.



**QUESTIONS**

**1. What are the three main rules of shooting safety?** \_\_\_\_\_

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**2. What is the job of the range officer?** \_\_\_\_\_

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**3. Why do we need range rules?** \_\_\_\_\_

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**4. Why should the action of a rifle be open except when ready to fire?** \_\_\_\_\_

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**5. What are the four positions in rifle target shooting?** \_\_\_\_\_

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**6. What are the basic range commands used on your club range?** \_\_\_\_\_

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**7. Why do we start with the prone position?** \_\_\_\_\_

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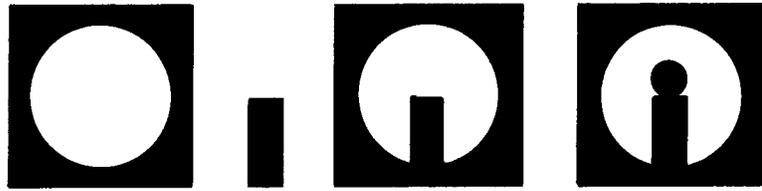
**8. Explain what you do when the range officer calls "cease fire?"** \_\_\_\_\_

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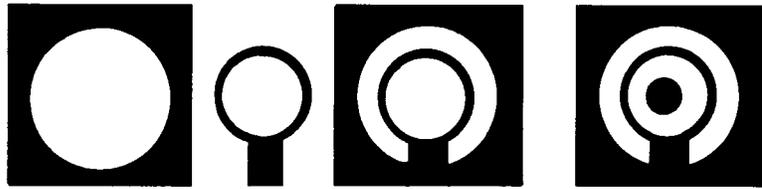
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**SIGHTS AND SIGHT PICTURES**



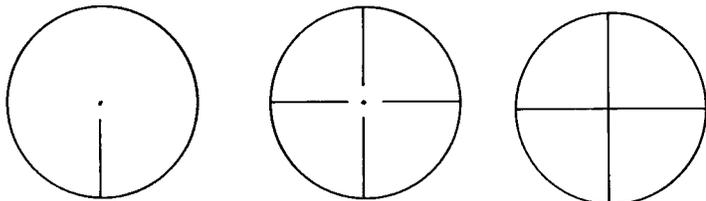
Rear peep-front post sights



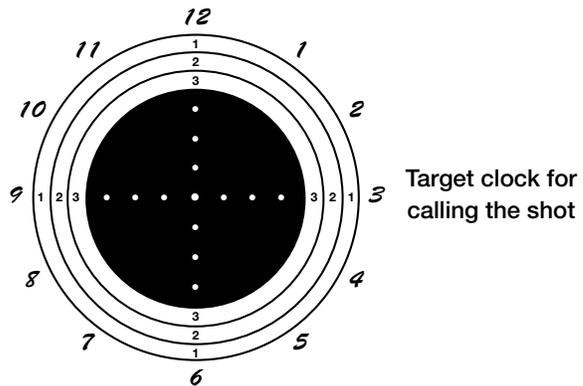
Rear peep-front aperture sights



Open rear-front post sights



Telescopic sights



Target clock for calling the shot

## Air Rifle Worksheet #3

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### AIMING AND SIGHT PICTURE

When aiming a rifle, you simply align the sights of the rifle with the bullseye on the target.

The most common sights on rifles are open, peep-rear sight and post-front sight, peep sight on both rear and front, and telescope.

It is very important that you learn what the proper sight picture is with your rifle and then be sure you use the same sight picture for every shot. This is learning to be consistent. You may refer to the back of this page for several examples of correct sight pictures.

### CALLING THE SHOT

As you gain shooting experience and your shooting ability improves, you will be able to tell when a shot goes out. This means you have been able to determine if your sight picture was improper at the instant the rifle fired. This is known as “calling the shot.” When calling the shot, you use the clock system. You need to visualize the target as a clock face. If you think the shot went low you would say the shot is low at six o’clock. Please refer to the “clock target” on the back of this page and place or draw three bullet holes as follows: high at twelve o’clock, wide to the right at three o’clock, and low at six o’clock.

### TRIGGER CONTROL AND BREATH CONTROL

These are two very important parts of good marksmanship. Trigger control means just that: do not yank or jerk the trigger. You need to practice trigger control. Trigger control is moving the trigger to the rear without disturbing the sight picture until the gun fires.

You also need to practice breath control. As you move the trigger to the rear, take a breath, exhale part of the air, hold the remainder of your breath, continue moving the trigger to the rear until the rifle fires, then continue breathing. If you run out of breath, take another breath and start again. If you hold your breath too long, you will have a shaky sight picture and it will result in a poor shot placement.

### FOLLOW THROUGH

“Follow through” when firing a rifle means to hold your sight alignment and position for the count of two after your rifle fires. Your leader or coach will demonstrate this for you. It’s just like swinging a ball bat. You don’t stop your swing just as the bat hits the ball, do you? This is the same thing. You need to follow through when shooting as well. Hold your sights on the bull’s-eye for a couple seconds after you fire.

## QUIZ

**1. Name three types of rifle sights.**

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**2. In the space below, draw an example of open sights.**

**3. What does “calling the shot” mean?**

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**4. What happens if you jerk or yank the trigger when you fire at the target?**

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**5. What will the bullet hole in the target tell you?**

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**6. What happens if you hold your breath too long as you are pulling the trigger?**

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**7. Explain what “follow through” is when firing a rifle.**

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**8. What do you do when the range officer calls cease fire?**

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## THE SHOOTING POSITIONS



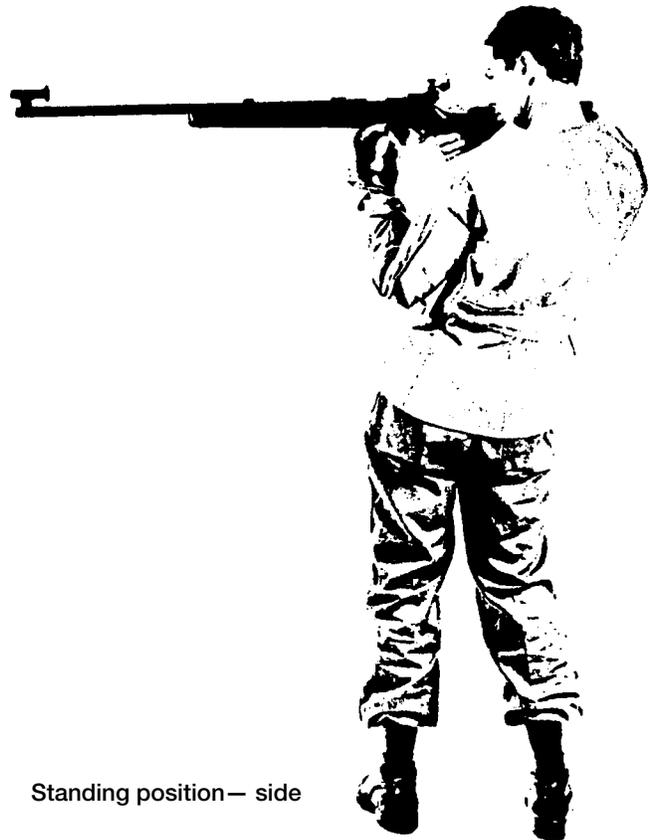
Prone position—front



Prone position—side



Standing position—rear



Standing position— side



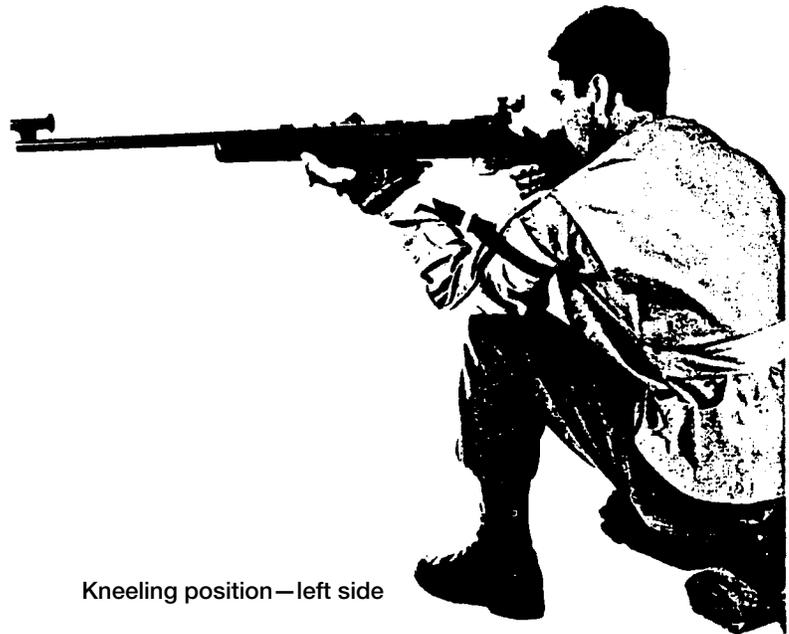
Standing position—front



Standing position



Kneeling position—right side



Kneeling position—left side



Kneeling position—front



Kneeling position—rear



Closed sitting position

## Air Rifle Worksheet #4

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### SHOOTING POSITIONS

In this project you will be learning to shoot from four different positions which are all used in target shooting. The description of each position is very clearly explained in the *NRA Junior Rifle Handbook*. A good shooting position should provide you with a steady, solid hold. Whether you shoot right- or left-handed is determined by your dominant eye. Many young shooters start with the prone position; however, during the last five or more years, some coaches are starting shooters off in the standing position. A list of suggestions will follow for each position for right-handed shooters. If you shoot left-handed, you should reverse the right to the left.

### The Prone Position

1. Lie down with your body pointed just to the right of the aiming area.
2. Place your left elbow in front of your body to support the upper body.
3. Keep your left leg straight, with your toe pointing in or straight back.
4. Bend your right knee and point your foot out.
5. Put your right elbow in a position to help support your upper body.
6. Place the rifle butt against your right shoulder. Keep the stock high enough to provide a comfortable head position so your eyes look easily through the sights.
7. Rest the rifle forearm on the heel of your left hand. Raise or lower the rifle by moving your hand forward or backward until the rifle barrel is level.
8. Grasp the pistol grip lightly with your right hand.
9. Mark the location of the V in your left hand on the forearm of the rifle. If adjustable, slide the sling swivel back to the mark or V in your left hand.
10. To adjust the sling, kneel on the mat with both knees and place the butt of the rifle on the mat between your knees.
11. Rest the barrel of the rifle against your right shoulder.
12. Form a loop with the sling and twist the loop half a turn clockwise.

13. Place the sling high on your left arm and tighten the sling keeper.
14. Wrap your arm around the sling so that the sling comes across your left hand and forearm.
15. Put the rifle back into position with the sling loose. Be sure your left hand is at the same place on the rifle forearm.
16. Tighten the sling so that, when the rifle is in position, the sling and not the muscles of your left arm hold the rifle. Mark the sling so you can return it to the same adjustment later.
17. Put up a target and get into the prone position.
18. Look through the sights and aim, then look away and down from the target but keep your eyes open.
19. Let your body relax until the rifle points where it wants to point naturally.
20. Look up to see if the sights are still on the bull's-eye.
21. If your body is pointing to the left or right, turn your entire body and rifle, rotating on your left elbow.
22. If the rifle is pointing high, lower the rifle by lengthening the sling and moving the sling swivel forward.
23. If the rifle is pointing low, make the opposite adjustments to the sling and sling swivel. Make a small adjustment at a time.

### **The Standing Position**

1. Turn your feet 90 degrees away from the aiming area. Spread your feet shoulder-width apart.
2. Keep both knees straight.
3. Spread your weight evenly over both feet.
4. Bend your back sideways and to the rear, away from the aiming area.
5. Twist your back by turning your shoulders toward the aiming area.
6. Bend your left arm and rest your left elbow on your side.
7. Bend your right arm and hold your elbow out from your body.
8. Let the rifle rest on your left hand; use either a split-finger position or clenched fist to support the rifle.
9. Rest your left arm on your side. Let the bones of your left arm and hand support the rifle. Your left arm should be relaxed.
10. Grasp the pistol grip firmly with your right hand. Pull the stock back into your shoulder.
11. Place the rifle high enough on your shoulder to keep your head erect or tipped slightly forward. Look through the sights.
12. Balance the weight of your body and rifle equally on both feet. Bend your back for balance.
13. The sling is not used in the standing position.

## **The Kneeling Position**

1. Start with a small, loosely filled kneeling roll. Place it on the floor, pointed 30–45 degrees away from the aiming area.
2. Place the top of your right foot on the kneeling roll with your knee pointed 30–45 degrees away from the aiming area.
3. Point your toe straight back and sit on your heel.
4. Your heel should be under the base of your spine or just to the right.
5. Put your left leg in front of your body with your lower leg straight up and down.
6. Let your shoulders slump so all your body weight rests on the kneeling roll.
7. Complete the position by putting your left elbow on your left knee. Be careful not to move your body when doing this.
8. Place the rifle on your shoulder. Keep the stock high enough so that your head is nearly vertical and your eye looks easily through the sights.
9. Raise or lower the rifle by moving your hand forward or backward until the barrel is level.
10. Grasp the pistol grip lightly with your right hand.
11. Mark the location of the V on your left hand. Move the sling swivel to the V in your hand if adjustable.
12. Form a sling loop and put the sling high on your left arm.
13. Tighten the sling keeper.
14. Put the rifle back into position with the sling loose. Be sure your left hand is at its marked location.
15. Tighten the sling until it supports the weight of the rifle.
16. Get into position.
17. Look through the sights and aim, then look down and away from the target.
18. Let your body relax until the rifle points where it wants to point naturally.
19. After a few seconds, look back through the sights to see if the position needs correction.
20. If the rifle is pointing to the left or right, turn your entire body and rifle, pivoting on the kneeling roll.
21. If the rifle is pointed high, lower it by lengthening the sling and moving the sling swivel forward.
22. Raise the rifle by shortening the sling and moving the sling swivel back.
23. To load the rifle in the kneeling position, take the rifle off of your shoulder. Use your right hand to replace the butt plate on your shoulder.

## **The Sitting Position**

1. Sit down, facing about 30 degrees away from the aiming area.
2. Cross your left leg over your right leg.
3. Your right foot should lie on its side.
4. The lower back part of your left leg should rest on your right ankle and your left toe should point up.
5. Bend forward with your body and rest both elbows on your legs below the knees.
6. Your legs should relax down as far as they will comfortably go. This is the extended sitting position.
7. Place rifle squarely on your shoulder. Keep the stock high enough for your eyes to comfortably look straight ahead through the sights.
8. Raise or lower the rifle by moving your left hand forward or back until the rifle barrel is level.
9. Grasp the pistol grip lightly with your right hand.
10. Mark the location of the V in your left hand and move the sling swivel back to the V at your hand if adjustable.
11. If you use the closed sitting position, sit down facing 45–60 degrees away from the aiming area.
12. Cross your left ankle over your right ankle and pull your crossed ankles in close to your body.
13. Bend forward with your body and rest your elbows on the insides of your knees.
14. Let the weight of your upper body rest on your legs.
15. Get into position with the rifle following the same steps as for the extended position.
16. Find the proper location for the left hand, mark it, and move the sling swivel to that point if adjustable.
17. Form a sling loop and put the sling on your left arm.
18. Tighten the sling keeper.
19. Put the rifle back into position with the sling loose.
20. Tighten the sling until it supports the weight of the rifle. A properly adjusted sling is usually shorter while sitting than when prone or kneeling.
21. Do the position check as described before. If you need to move right or left, you should pivot on your buttocks. If you need to raise or lower the rifle, change the sling and sling swivel as described for other positions.

## Air Rifle Worksheet #5

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### SHOOTING FOR SCORE

**1. Draw the following sight pictures: peep sights front and rear with bull's-eye in center; peep sight rear and post sight in front with a six o'clock hold on bull's-eye.**

**2. Why should you try to shoot a small group?** \_\_\_\_\_

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**3. Explain why you should use a controlled trigger pull instead of jerking or yanking the trigger.**

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**4. Draw in the space below the proper sight picture for the rifle you are using in this project.**

**5. How are breath control and trigger control related?** \_\_\_\_\_

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## Air Rifle Worksheet #6

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### SIGHTING IN

1. The use of the sling has been described previously in the unit on shooting positions. It is important that you learn to use the sling early in your shooting experience. It will give you a much better score and be a big boost to your confidence. Shooting will also be less tiresome for you. Take some time now to practice positions and sling adjustments. Remember that if you have to make sling adjustments after you have started firing be sure your rifle is unloaded and the action is open. Think safety first, last, and always.
2. Remember when you answered the question as to what the bullet hole in the target meant. Of course it means that is where the rifle was pointing when you pulled the trigger. If the bullet hole wasn't where you wanted it to be, you have to adjust the sights. This is something every shooter has to learn. Since most of the rifles you are using in this project have a rear peep sight,

this is where you should make your sight adjustment. Suppose your rifle is printing an inch out of the bull's-eye at three o'clock. In other words, this is where the bullet hole appeared when you fired the shot. How can you move the rear sight to correct this situation? Your leader has probably told you already that you move the rear sight in the direction that you want the bullet hole on the target to move. Look at your rear sight for the arrow indicators showing which direction is up or down or right and left. Check the instruction booklet that came with the gun sights and it will tell you how much the sight moves for each click the sight knob makes as you turn it. Now measure how far right the hole is from the bull's-eye and figure out how many clicks you need to turn the sight knob to bring the sight left to the center of the bulls eye. You do the same thing for holes in other directions. Moving sights up and down is referred to as changes in elevation; moving right and left is referred to as changes in windage. Sometimes you will have to adjust sights for both windage and elevation.

## Final Quiz

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1. **T F** The shooting principles learned in this project apply to shooting any rifle, regardless of its size or caliber.
2. **T F** It is possible to become a good rifle shot even though you are not large or strong.
3. **T F** The prone position is taught first because it is the steadiest position to shoot from.
4. **T F** To become a good shooter, the person must learn to concentrate only on the sight picture.
5. **T F** A gun sling is used only to carry the rifle.
6. The basic positions of rifle shooting are:
  - a. prone, standing, sitting, squatting
  - b. standing, sitting, kneeling, prone
  - c. sitting, kneeling, prone, lying down
7. When firing the rifle from any position, the basic things a shooter must practice are:
  - a. sight picture, trigger control, good score
  - b. trigger control, sight picture, standing still
  - c. breath control, sight picture, trigger control
8. Once a shooter learns a position, he can master the position by:
  - a. using it only when shooting
  - b. practicing the position over and over whether shooting or not
  - c. forgetting about it
9. A beginning shooter should concentrate only on:
  - a. being the best shot
  - b. shooting in a small group, the high score will come later
  - c. correct position, sight picture, trigger control, etc.
10. When firing the rifle, the trigger should be:
  - a. jerked
  - b. yanked
  - c. pulled

*(continued on next page)*

- 11.** The commands on the rifle range are:
- a.** to be obeyed immediately
  - b.** to make the range officer feel important
  - c.** not necessary
- 12.** When you hear the command “cease fire,” you should:
- a.** fire your last shot
  - b.** immediately open the action, unload the rifle, and lay it down
  - c.** pay no attention
- 13.** On the rifle range, the “range officer” is:
- a.** the absolute boss
  - b.** a nice guy
  - c.** the best shooter on the range
- 14.** On the rifle range, the rifle is never loaded until the range officer gives which command:
- a.** is the line ready?
  - b.** commence firing
  - c.** load
- 15.** The most important safety feature about a rifle is:
- a.** the mechanical safety
  - b.** the bolt of the rifle
  - c.** the shooter

**Optional:**

- 16.** Explain and demonstrate the use of the sling for one of the shooting positions.
- 17.** Explain and demonstrate one of the four shooting positions.
- 18.** You have been given the command to “commence fire” and your rifle malfunctions.  
Explain what you should do.
- 19.** You have fired several shots at your target and the wind suddenly blows your target loose.  
Explain what you should do.



### 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.

#### My 4-H Activities Report for the 20\_\_ Club Year

Projects taken \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Offices held

Club \_\_\_\_\_

County \_\_\_\_\_

“Show-and-tells” given to:

Family \_\_\_\_\_

Friends \_\_\_\_\_

Local club \_\_\_\_\_

County \_\_\_\_\_

Regional \_\_\_\_\_

State \_\_\_\_\_

News articles \_\_\_\_\_

Radio \_\_\_\_\_

TV \_\_\_\_\_

Things done to improve your health \_\_\_\_\_

\_\_\_\_\_

Community service or citizenship work done

By myself \_\_\_\_\_

With club \_\_\_\_\_

Number of meetings your club held this year \_\_\_\_\_

Number you attended \_\_\_\_\_

Number of new members you encouraged to join 4-H \_\_\_\_\_

Number of boys and girls you helped with projects \_\_\_\_

In what way? \_\_\_\_\_

Check those attended and tell how you helped

3- or 4-day camp \_\_\_\_\_

1-day camp \_\_\_\_\_

Club or county tours \_\_\_\_\_

Club picnic \_\_\_\_\_

Countywide picnic \_\_\_\_\_

4-H Sunday \_\_\_\_\_

County fair \_\_\_\_\_

Achievement programs \_\_\_\_\_

Roundup \_\_\_\_\_

Teen Leader Retreat \_\_\_\_\_

State 4-H Capital Days \_\_\_\_\_

Camp Leadership Training \_\_\_\_\_

Penn State 4-H Achievement Days \_\_\_\_\_

Pennsylvania Farm Show \_\_\_\_\_

National 4-H Week \_\_\_\_\_

Leadership Conference \_\_\_\_\_

Others \_\_\_\_\_

\_\_\_\_\_

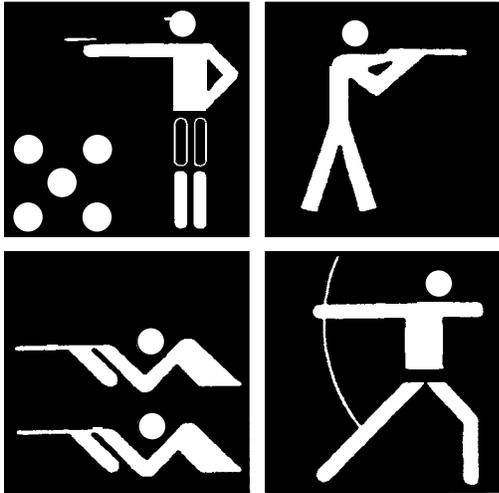
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_







Name \_\_\_\_\_

Address \_\_\_\_\_

Name of Club \_\_\_\_\_

Leader's Name \_\_\_\_\_

Name of Project \_\_\_\_\_

For further information visit [www4-hshootingsports.org](http://www4-hshootingsports.org).

Visit Penn State's College of Agricultural Sciences on the Web: [agsci.psu.edu](http://agsci.psu.edu)

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#### 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



18 U.S.C. 707