MISSISSIPPI STATE UNIVERSITY EXTENSION

Introduction to Basic Archery

Archery includes a complex set of activities, from backyard target shooting to formal or field competitions, from family fun to bow hunting and bow fishing, or even the Olympic Games. But for each of these sports, the basics are the same.

Archery is a sport that can involve people of all ages. You don't have to be particularly strong to participate, and it doesn't cost very much.

This unit is designed to help beginning archers develop good fundamental shooting skills. It is based on the principle of immediate participation and immediate success. In other words, shooters are involved in hands-on experiences that will help reinforce the basic principles of archery.

Objectives

One of the major objectives of this unit is to help the leader to effectively help young people:

1. develop a working knowledge of archery tackle and maintenance of that tackle.
2. learn through practice how to safely handle archery equipment.
3. develop basic archery shooting skills.
4. learn about the various competitive and noncompetitive archery games.

Materials and Equipment

- Target butts and mats (36-inch size), one-third shooters
- Target faces
- White paper
- Colored adhesive dots (1-inch size)
- Target pins
- Bows, take-down target, 15- to 25-pound draw weight, 56- to 64-inch AMO length; compound, 35- to 45-pound draw weight; one each per pair of shooters (15 percent left-handed)
- Arrows (6 per student per bow) must be spined to the bow being used, assorted lengths 26-inch to 30-inch (recommended) fiberglass or aluminum shafts (compounds)
- Arm guard (one per shooter)
- Finger tab (one per shooter)
- Ground quivers (one per group of shooters)
- Bow square
- Nocking points and pliers
- Nocks, points, adapters, and fletching cement
- Spare arrow rests for both right- and left-handed bows
- Acetone or alcohol (cleaning solvent)
- Extra vanes
- Supportive teaching aids

Teaching Aids

Consider a display or an archery crafts session: fletching jig, string-making jig, arrow components, assorted quivers, assorted arrow heads, animal targets, clout rope and flag, balloons, and flu-flu arrows.

Facilities

See Figures 1 and 2 on the next two pages.

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4-H Shooting Sports

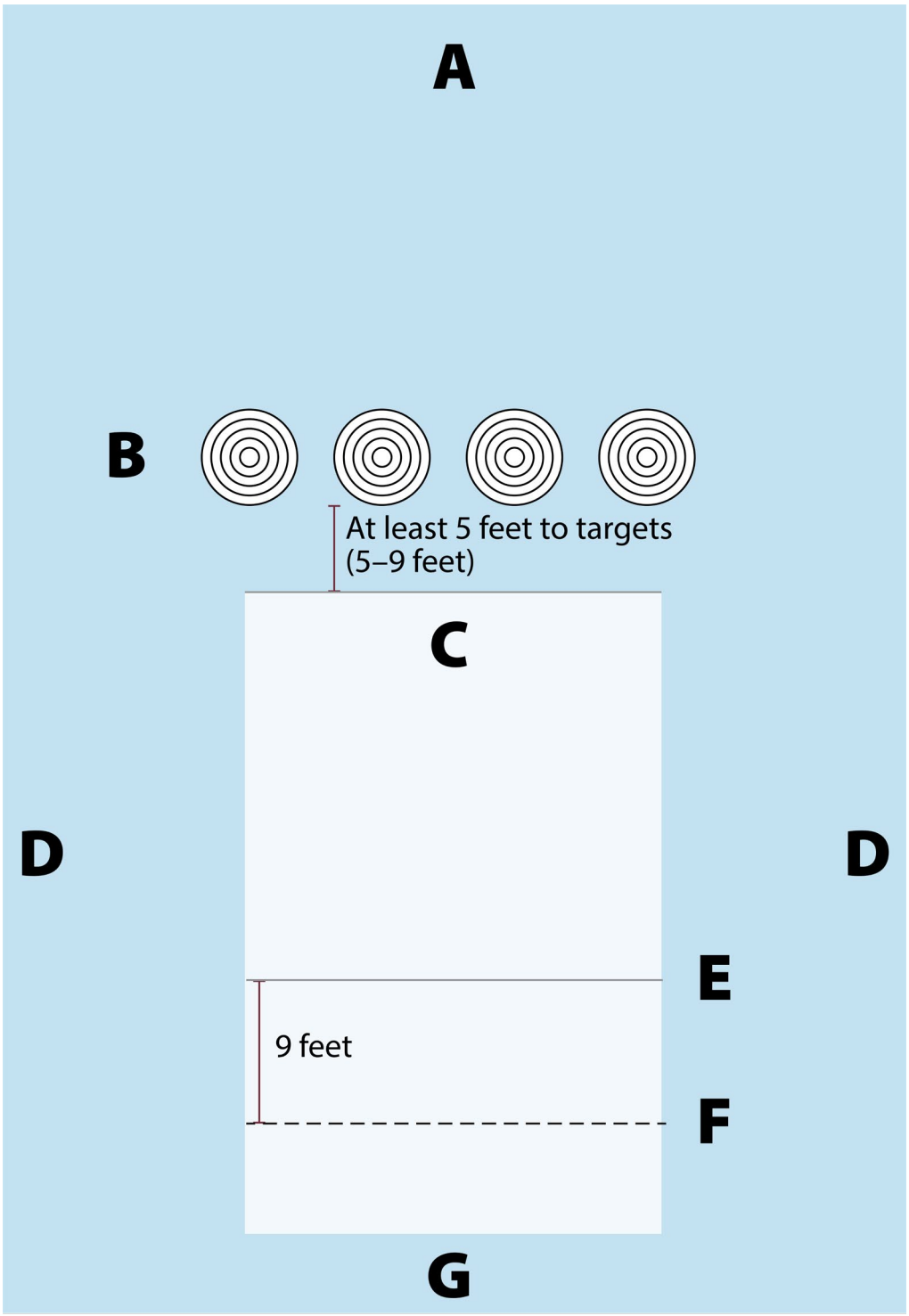
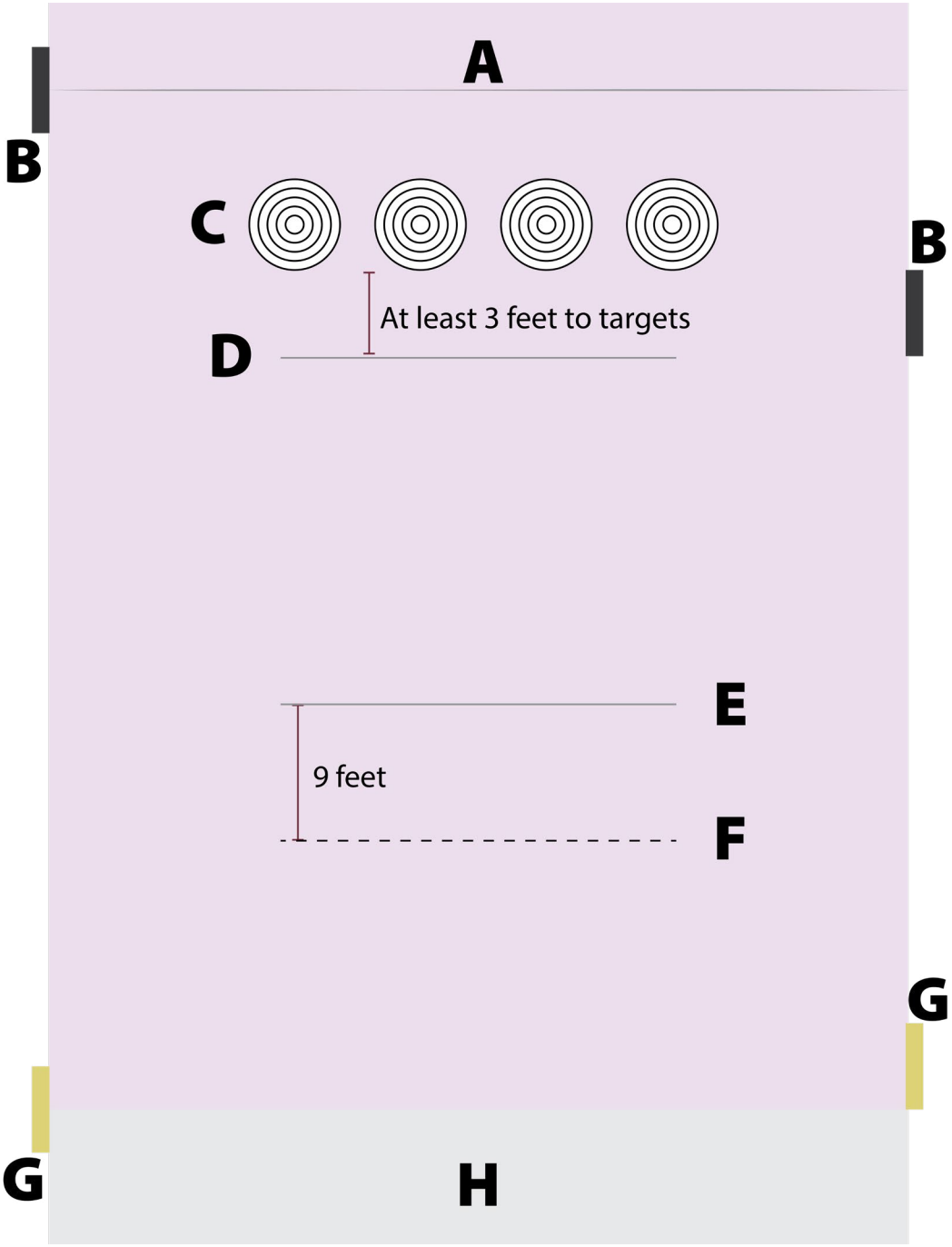


Figure 1. Outdoor archery range layout, labeled as follows:

A. Safety area (minimum 50 yards behind targets)
B. Targets (5–9 feet behind the target line)
C. Target line
D. Safety area (45 feet on each side of the range)
E. Shooting line (9 feet in front of the waiting line)
F. Waiting line
G. Controlled access/spectator area (behind the waiting line)

Figure 2. Indoor archery range layout, labeled as follows:

- **A. Safety curtain (at least 5 feet between targets and curtain)**
- **B. Locked door (one on each side of the target end of the range)**
- **C. Targets**
- **D. Target line (at least 3 feet from the targets)**
- **E. Shooting line (9 feet in front of the waiting line)**
- **F. Waiting line**
- **G. Open door (one on each side of the range behind the waiting line)**
- **H. Controlled access/spectator area (well behind the waiting line and near the open doors)**



Basic Archery Tackle

Bow

1. Riser

- Handle or hand grip
- Sight window
- Arrow rest
- Arrow plate

2. Limbs

- Face and back
- String nocks
- Draw weight and how it is measured

Application

- Demonstrate with appropriate tackle.
- Discuss proper weight for instruction: too-heavy draw weights tend to produce extremely bad habits; therefore, even adults should start with bows drawing less than 30 pounds (recurve) or 35 pounds (compound).

Arrows

1. Shafts

- Materials
- Length
- Cresting

2. Fletching

- Feathers and vanes
- Placement of the index feather for shooting

3. Nocks—speed, snap-on
4. Points

Application

- Emphasize the need for good quality. Stress economy in using glass or aluminum shafts.
- Stress safety considerations of having arrows too short and reasons for cutting them to length.
- Illustrate nocking of arrow.
- Demonstrate point types and uses.

Protective Shooting Equipment

1. Arm guard
2. Finger protection

- Tab
- Glove
- Other types

3. Other protective equipment

Application

- Demonstrate proper placement of protective equipment.
- Discuss relative merits of tabs, gloves, releases, and "no-gloves."
- Discuss chest protectors.

Quivers

- Ground quiver
- Pocket or hip quiver

Determine "Handedness" of Shooters

Eye dominance determines the drawing hand for the student. Stress the importance of shooting with the dominant eye. Have pairs of participants determine eye dominance.

Methods

1. Look at the partner's nose through a small opening created by overlapping the thumbs completely and covering the fingers of the bottom hand with those of the top hand. Keep eyes open and move the opening toward the face. The hands should move to the dominant eye. The partner will be able to see the dominant eye in the opening when the first sighting is made. Watch for the occasional student who attempts to force the nondominant eye to operate. Wavering between the eyes, squinting, or closing one eye are indications of that possibility.
2. A tube (for example, a tissue paper tube) may be used in a fashion similar to that described above.
3. With both eyes open, have the participant point to a distant object and alternately close each eye. When the finger seems to jump away from the object, the dominant eye has been closed.

Archery Range Rules

1. Know and obey all range commands.
2. Keep your arrows in your quiver until you are told to shoot.
3. Always wear your arm guard and finger tab.
4. Only use arrows the instructor gave you. Remember what they look like.
5. Always keep your arrows pointed down or toward the target. Shoot only at your target.
6. Only release a drawn bow with an arrow nocked on the string.
7. If you drop an arrow, leave it on the ground until you are told to pick it up.
8. Always walk at the archery range.

Archery Equipment and Techniques

Bracing and Unstringing the Bow

1. Step-through method

- Danger of twisting limbs
- Potential danger of standing in the middle of a mass of stressed glass and wood
- Must maintain string and limb alignment

2. Push-pull method
3. Using a bow-stringer

Application

- Discuss and demonstrate step-through and push-pull stringing methods. Stress risk to equipment and shooter.
- Demonstrate and have participants practice stringing and unstringing bows, using an appropriate stringer.

Shooting a Bow

Similarities with Other Shooting Systems

1. Tension/relaxation
2. Breath control
3. Stance
4. Aiming systems

- Target concentration
- Sight concentration
- Other aiming methods

5. Shooting dynamics
6. Follow-through

Application

- Emphasize straight-line pull of forearm.
- Breath held during aim, release, and follow-through.
- Mention similarity to shotgun shooting.
- Mention similarity to rifle or pistol shooting.
- Review 9 Steps to 10 Ring.

Practice Development of a Live Release

Demonstrate back tension and release by hooking fingertips across chest at shoulder height and tightening the muscles between the shoulder blades. Have students relax finger tension while increasing the back tension to simulate a live release.

Establish Instinctive Anchor Point Without Equipment

Have students draw 1 inch and release without an arrow on the string to feel a release. Nock an arrow using the instructor-pupil method.

Nock an Arrow

Watch the position of the index fletch and the location of the nock on the string. Draw to anchor point and let down without shooting.

Draw, Anchor, and Let Down Without Shooting

Demonstrate proper shooting form on a bare target butt.

9 Steps to 10 Ring

1. Stance
   a. One foot on each side of the shooting line
   b. Balanced stance with feet shoulder width apart
   c. Stand straight and tall with head up, shoulders down and relaxed
2. Nock
   a. Place arrow on arrow rest, holding arrow close to nock
   b. Keep index fletching pointing away from bow
   c. Snap nock of arrow onto bowstring under nock locator
3. Set
   a. Bow hand on grip using web and meaty part of thumb
   b. Keep bow hand in place throughout entire shot
   c. Set first groove of first three fingers around the bowstring under the arrow nock, creating a hook
4. Pre-draw
   a. Raise bow arm toward target, while keeping shoulder down and aligning chest perpendicular to target
   b. Drawing arm should be near level of nose
   c. Bow arm elbow should be rotated so it is straight up and down
5. Draw
   a. String back in straight line from pre-draw o side of face
   b. Set drawing arm shoulder back and down until elbow is directly behind or a bit higher than arrow
6. Anchor
   a. Draw string to side of face, placing tip of first finger on corner of mouth
   b. Keep hand snug against face, folding thumb down and little finger toward palm

7. Aim
   a. Look at target or through sight, keeping focus on form
   b. Keep string lined up with center of bow
8. Release
   a. All tension in fingers and drawing hand, all at once, while continuing to draw bow without stopping
   b. Continue bow arm toward target
   c. Continue focusing on target
9. Follow-through

- Drawing hand continues back beside neck with fingers relaxed, ending up behind ear
- Maintain follow-through until arrow hits target

Troubleshooting and Critiquing Form

Troubleshoot as appropriate, correcting one fault at a time and re-emphasizing the basics of good shooting form.

Arrow Flight Problems

Porpoising—vertical oscillation
- Nocking point too low
- Downward pressure on nock from poor release

Fishtailing—horizontal oscillation
- Under-spined shaft
- Improper arrow plate or spring plunger adjustment
- Closing hand on the string

Planing—arrow appears to float upward rather than taking a parabolic flight path
- Nocking point too low
- Improperly placed nock

Diving—arrow plunges rather than taking parabolic path
- Nocking point too high
- Lifting the hand vertically from the string on release

Erratic vertical impact
- No nocking point
- Moving nocking point
- Moving the hand on release

Group Placement and Solving Shooting Problems

No group—inconsistent shooting form
- Watch student to determine points of variation
- If multiple problems are observed, work on correcting one problem at a time

Grouping to bow hand
- Over-spined arrows—change to proper spine
- "Throwing" the bow hand—concentrate on follow-through
- Canting the bow or body—return to nominal form
- Plucking the string (i.e., drawing hand moves away from the face or neck during release)—concentrate on hand position and using back muscles to achieve live release
- Wind direction or improperly aligned sight
- Sighting with opposite eye—recheck eye dominance

Grouping to drawing hand
- Under-spined arrows—correct spine weight
- Gripping riser too firmly—open, relaxed grip
- Moving the anchor point toward the nondominant eye
- Wind direction or improperly aligned sight

Arrows grouping high
- Over-drawn or jerked release
- Healing bow—inadequate wrist extension
- Excessive grip pressure at riser on release
- Dropping bow hand on release

Arrows grouping low
- Deal release—relaxing tension on drawing or bow hand
- Hitting arm or clothing

Shooting with Sights

- Change of focus from target to sight pin
- Change of anchor from eye tooth to center of chin with string touching tip of nose (two reference points)
- Bow arm lower at the elbow to maintain straight-line release
- Sight adjustment
  a. Move sight toward hits (front sight adjustment)
  b. Move sight opposite direction from intended impact change
  c. Count revolutions of lateral adjustment or mark vertical adjustment to reduce trial-and-error process

Application

Repeat instructor-pupil practice session and troubleshoot as needed; permits more adjustment range for the sight.

Publication 1564 (POD-08-25)

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Produced by Agricultural Communications.

Extension Service of Mississippi State University, cooperating with U.S. Department of Agriculture. Published in furtherance of Acts of Congress, May 8 and June 30, 1914. ANGUS L. CATCHOT JR., Director

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