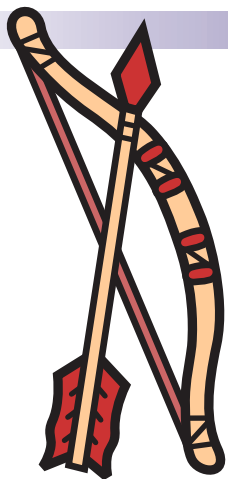


Tools for Archers



Life Skill: Wise use of resources

Project Skill: Making equipment commonly used in archery

Objective: Identify and locate household materials to recycle in the construction of archery equipment

Success Indicator: Participants make functional archery equipment from recycled materials

Provisions Needed

- Recyclable household materials: leather, plastic, wood, wire, elastic, rope, nails, etc.
- Drill
- Hammer
- Pencil or marker
- Knife or scissors
- Ruler or tape measure



Trailhead

Native Americans used bows and arrows to hunt animals and protect themselves long before the invention of guns. These tools have been used for at least 50,000 years, according to archaeologists. In developing countries, the bow and arrow are still primary tools for getting food. The skill of shooting with a bow and arrow is called archery. It is even an Olympic sport. Archery is challenging, fun, and great exercise. Best of all, you can reuse arrows and make a lot of the equipment yourself from recycled materials.



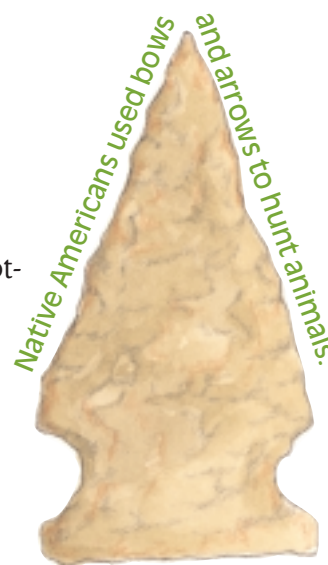
Trailblazing

Using only recycled household materials, make the following archery equipment and accessories: arm guard, ground quiver, belt quiver, and target jig.

An **arm guard** protects the arm from the return of the bowstring during shooting. It also provides a smooth surface for the string to strike, preventing the arrow from flying improperly. You can make an arm guard from leather or plastic. It should be 1 to 2 inches longer than half the distance from your wrist to your elbow. You can use elastic strips 1/2 inch wide to secure the guard around your arm (Figure 1).

A **quiver** is a holder or carrier for storing arrows. Some common types include the ground quiver, bow quiver, pocket quiver, and hip-and-belt quiver. A **ground quiver** can be formed from a coat hanger or other wire material. Bend the wire to form a 3-inch circle at one end, and stick the other end into

make your own archery equipment



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Internet Resource

• <http://www.usarchery.org>

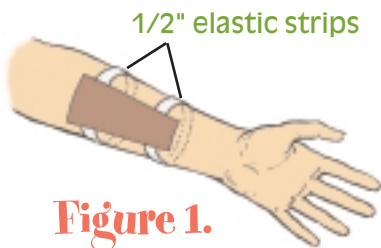


Figure 1.
Arm guard

Figure 2.
Ground quiver

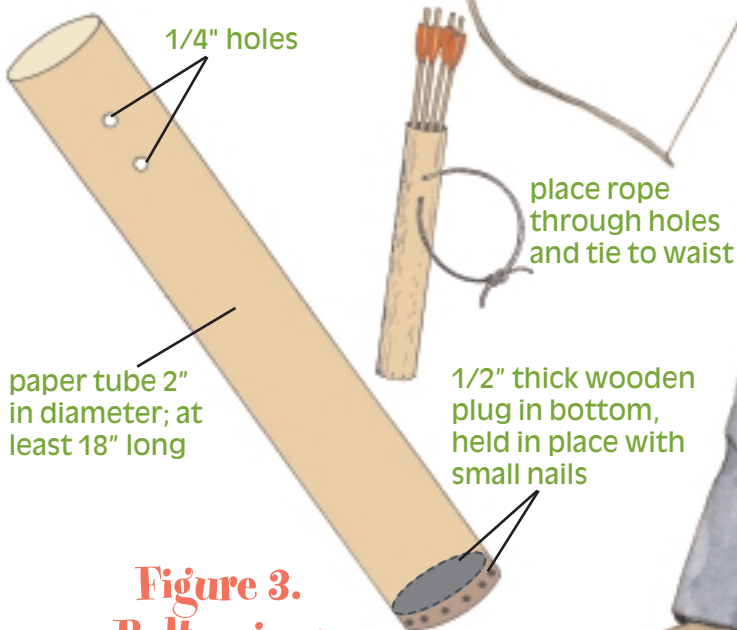
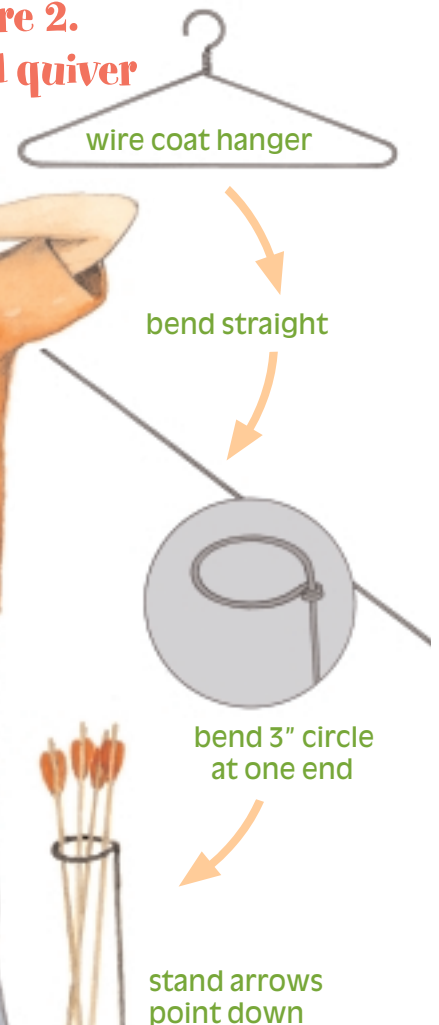


Figure 3.
Belt quiver

the ground (Figure 2). A **belt quiver** can be made from lightweight plastic or paper tubing that is at least 18 inches long. A wooden plug should be secured at the bottom of the tube using small nails. Use string to attach the tube to your belt (Figure 3).

A **target jig** is a handy tool for creating and scaling targets. It can be made from wood or heavy plastic. The jig should be at least 12 inches long and 2 inches wide. One end of the jig should be made into a “pivot” point by insertion of a nail or pin. Three to five holes, each large enough to insert a pencil, should be drilled or punched through the jig at measured distances to create the desired number of circles and target size (Figure 4).

Tools for Archers



Field Guide

Archery is fun, but it can be dangerous. After all, most arrows are designed to kill. Think of the bow and arrow as a loaded firearm. Below are some basic rules of safety.

Safety Rules

- Never shoot an arrow straight up.
- Never point an arrow at another person.
- Shoot arrows of proper size for the bow.
- Always identify a target. Do not shoot toward a house, highway, livestock, or other people.
- When target-shooting, do not retrieve your arrow until everyone has stopped shooting.
- Do not try to shoot an apple or other object off a person's head or other body part.
- Never use a damaged, weakened arrow. Destroy it.
- Replace bowstrings when they become worn.
- Always wear an arm guard and finger tab or shooting glove.
- Never make a full draw with your bow on a cold day without several partial draws first. A sudden jerk could snap the bowstring.
- Never draw and release the bow without an arrow in it.
- Never engage in horseplay with your bow and arrows.
- When in doubt about your target, your equipment, or your procedure, do not shoot.

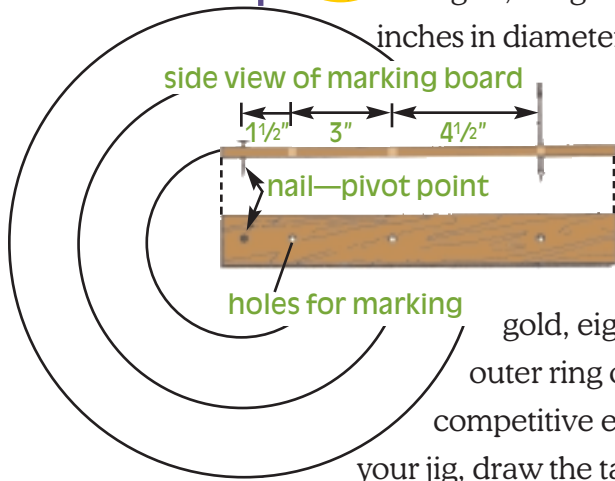
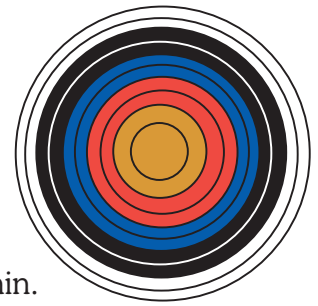
Tools for Archers

Figure 4.
Target jig



The Extra Mile

Although there are several types of archery targets, a regulation target has a face that is 48 inches in diameter with 10 **concentric** circles within.



(“Concentric” means a group of circles that share the same center.) The center of the target is two rings of gold, followed, in order, by two rings each of red, blue, black, and white. Scoring is 10 points for the smallest gold circle, nine for the next

gold, eight and seven for the reds, and so on until the largest, outer ring of white counts only one. This is the target used in most competitive events. Make a jig for the regulation target. Then, using

your jig, draw the target, making sure to incorporate the appropriate colors for the different rings. Can you think of ways to improve the regulation target and its scoring system? If so, develop your own jig, target design, and scoring system.



Field Notes

SHARE

- How easy was it to find old material or recyclable items around your house or work space?
- What material created the most comfortable or functional items?

PROCESS

- How much money do you think you saved by using recycled materials?
- Which type of quiver do you expect would be most useful? Why?
- How might someone make a bow or arrow out of recycled material? How would it compare to a bow and arrows purchased from a store?

GENERALIZE

- How does the use of recycled products in our everyday lives help or hurt the environment?

APPLY

- Could all or some parts of bows and arrows sold in a store be made from recycled materials?