

Outdoor Education and Shooting Sports Project Area Guide



Beginner Level

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Unit 1: Outdoor Activities including Camping & Hiking



Activity 1

The 10 Essentials of Outdoor Activities

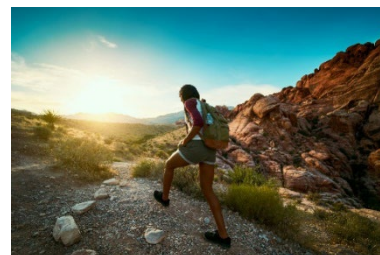
Project Outcomes

- Explain the importance of each of the 10 Outdoor Activities Essentials

Today, you are preparing for a 3-hour hike in the Great Smoky Mountains. Let's go over the Rule of 3 to help us properly prepare.

The body can survive:

- 3 weeks without food
- 3 days without water
- 3 minutes without oxygen
- (optional) 3 hours in extreme weather (cold, wet, etc.)



You have a table full of supplies in front of you. Which items should you select for today's hike? Circle or highlight the top 10 items you feel are a must! You should know going into this, there are more than 10 essentials!

Band-Aids	Whistle	Toilet paper	2-Liter soft drink	Fire starter
Cell phone cord	Spork	Pocketknife	Water filtration straw	Snake bite kit
Paracord	Sewing kit	Compass	Flashlight with batteries	Poncho with hood
Map of area	Bug spray	Hammock	Trash bags (2 sizes)	Fire starter log
Disposable Lighter	Hand warmers	Sunscreen x 2	Magnesium fire starter	Small cooking pot

So which items did you choose? For a three-hour hike or a week-long hike, your choices should be similar. The essentials (or must-haves) for any outdoor hike are highlighted in yellow. Possible items to carry along are highlighted in blue.

Band-Aids	Whistle	Toilet paper	2-Liter soft drink	Fire starter
Hatchet	Fleece or hoodie	Duct Tape	Field guide for birds	Tree ID book
Cell phone cord	Spork	Pocket Knife	Water filtration straw	Snake bite kit
Sheath knife	Matches	First aid kit	Snack size peanut butter	Head lamp
Paracord	Sewing kit	Compass	Flashlight with batteries	Poncho with hood
Protein bar	Thermometer	Wet wipes	Light without batteries	Tick repellent
Map of area	Bug spray	Hammock or Tent	Trash bags (2 sizes)	Fire starter log
Gloves	Pack saw	Sun shirt	Fishing line and hook	1 gallon Ziploc bag
Disposable lighter	Hand warmers	Sunscreen x 2	Magnesium fire starter	Small cooking pot

Items you can use to help you in the outdoors:

- **Navigation:** map, compass and/or GPS device
- **Sun Protection:** sunglasses, sun-protective clothes & sunscreen
- **Insulation:** Jacket, hat, gloves, rain gear, etc.
- **Illumination:** Flashlight, lantern or headlamp, plus extra batteries
- **First Aid Supplies:** First Aid kit, including insect & tick repellent
- **Fire:** matches, lighter & fire starters
- **Repair Kit & Tools:** Duct tape, knife, screwdriver, etc.
- **Nutrition:** Food, beyond the minimum expectation
- **Hydration:** Water & water treatment supplies
- **Emergency Shelter:** Tent, tarp, space blanket

(Source: National Park Service)

Experience

Go on an hour hike and when you get back answer the following questions:

- What items did you use?
- What items did you not use?
- What items did you pack?
- Were there any items you should have packed but you didn't?

Visual 1.1 Essential Items

	Emergency Shelter	Fire	First Aid Kit	Hydration	Illumination
Essential Items:	• Hammock • Poncho with hood • Trash bags (2 sizes)	• Disposable lighter • Fire starter • Fire starter log • Magnesium fire starter • Matches	• Band-aids • Bug spray • First aid kit • Gloves • Sewing kit • Snake bite kit • Thermometer • Tick repellent • Toilet paper • Wet wipes	• 2-Liter soft drink • Small cooking pot • Water filtration straw	• Disposable lighter • Flashlight with batteries • Fire starter • Fire starter log • Head lamp • Light without batteries • Magnesium fire starter • Matches
Possible Items:	• Fleece or hoodie • Paracord	• Flashlight with batteries • Hatchet • Pack saw • Sheath knife • Toilet paper	• 1 gallon, Ziploc bag • Duct Tape • Fishing line and hook • Pocket Knife • Sheath knife • Spork	• 1 gallon, Ziploc bag • Poncho with hood • Trash bags (2 sizes)	N/A
	Insulation	Navigation	Nutrition	Repair Kit and Tools	Sun Protection
Essential Items:	• Gloves • Hammock • Hand warmers • Fleece or hoodie • Poncho with hood • Sun shirt	• Compass • Map of the area • Whistle	• Fishing line and hook • Protein bar • Snack size peanut butter	• 1 gal, Ziploc bag • Disposable lighter • Hatchet • Pack saw • Paracord • Pocket Knife • Sewing kit • Sheath knife	• First aid kit • Fleece or hoodie • Hammock • Sun shirt • Sunscreen x 2
Possible Items:	• Duct Tape • Toilet paper • Trash bags (2 sizes) • Trowel	• Field guide for birds • Tree ID book	• Tree ID book • Water filtration straw	• Duct Tape • Cell phone cord • Fishing line and hook • Gloves • Spork • Thermometer	• Poncho with hood • Trash bags (2 sizes)

Activity 2 Campfire Skills

Project Outcomes

- Learn how to safely build a campfire and demonstrate this skill with an adult

Three Things a Fire Needs:

- Oxygen
- Fuel
- Heat

To build and maintain a fire, you will need oxygen, fuel, and a heat source. In this activity, you will learn six basic ways of building campfires. Each of these will call for kindling or tinder. These would be finely cut or shaved pieces of wood used to start the fire. You have several options for the heat to start the fire. If available, lighters or matches are always the easiest supply of heat. You can use flint and shavings or even friction if you want to try the more survivalist-focused methods.

Building Safely, Working Campfires

- Whatever layout you choose for your campfire or your heat sources, the most important thing is to make sure your fire is safe.
- Keep your fire area contained with a fire ring, rocks, or even a small trench dug out around it.
- Always have water available to extinguish the fire when finished or in case the fire breaches your containment area.
- Make sure to use downed trees and avoid cutting living trees
- Keep garbage out of the fire pit, and what you carry in make sure you carry it out
- Check for fire regulations in your area to make sure there are not fire bans in place

Building a Campfire



Source: The Art of Manliness: The 6 Fire Lays Every Man Should Know.

<https://www.artofmanliness.com/skills/outdoor-survival/the-6-fire-lays-every-man-should-know/> Accessed 1/26/22.

Teepee



Learn this one first before attempting any of the others. This style of fire is a great place to start if you're a beginner, as it's simple yet effective. This is a good fire for gatherings with lots of people, especially those who haven't built a fire before.

How to make it: Grab the smallest and driest pieces of kindling you can find, then make a small, teepee-like structure with them. Make sure the structure isn't too tight; you'll need to leave an opening for the next step: putting some tinder, like twigs and grasses, inside the center of the structure. Finally, light the tinder. You want to give the fire a place to concentrate its flame while still allowing a good amount of air to come in. Once your fire gets going, add more wood to help the fire slowly build.

Log Cabin/Criss-Cross



This is the ultimate fire for times when you need a fire going for warmth, but don't want to have to keep stoking the flames.

How to make it: Place two of your largest, sturdiest logs horizontally as your base, then place two logs on top of them vertically to create a three-dimensional #hashtag. Then work your way up with smaller logs and leave space in between them. Finally, add tinder or even a small teepee structure at the base, then light your fire.

Platform/UpSide-Down Fire



This fire is a superb style for cooking hot dogs, s'mores, or even food that requires a cast-iron pan. It's perfect for when you need a fire to last a long time — people will want those hot dogs all day! When this fire is done properly, it can burn all day or night.

How to make it: This fire is also nicknamed the "upside down fire" because your largest logs are used as the base and the small pieces of wood that make a teepee go at the top. Lay two or three of the largest logs down horizontally and then place smaller logs vertically on top. Continue this until you're ready to put your small teepee of kindling on top. Then light the fire and let it burn down until you've got glowing wood coals.

Star



Low on firewood? Try this easy campfire. Instead of burning all of your wood at once, this style burns a few logs bit by bit to keep the fire going for as long as possible without adding more wood.

How to make it: Create a small teepee with sticks and kindling, then lay out four to six logs around it, each with one end barely touching the teepee and the other facing out — you'll want to create a sort of wood asterisk. Then light the teepee and adjust the logs as they burn to ensure that every log is slowly consumed by flame.

Lean-To



The lean-to is a popular shelter to sleep in while you're camping to protect against harsh weather conditions. The lean-to campfire style does the exact same thing, and it's an excellent way to provide warmth through wind and rain.

How to make it: Place one big log down as the windbreaker, then lean smaller firewood on it perpendicularly. You'll build your mini teepee beneath the lean-to, which will protect it from the elements.

Swedish Fire



You don't need to be in Sweden for this creative fire. This is a lifesaver if you want to have a fire but don't have a lot of logs, since it only uses one. You can even use the top as a stove. You will need a chainsaw or some other tool for cutting wood.

How to make it: Find the thickest log available and place it upright like a drum. Hold it vertically in the campfire ring and make chainsaw cuts beginning at the top, as if you were cutting a pie into four wedges. Careful — you want to keep six inches from the base of the log uncut; if you cut it all the way to the bottom, you'll have to start over. Then put kindling in the center and between the wedges, light the fire, and you're good to go.

Keyhole



Named after [its keyhole shape](#), this fire gives you the best of both worlds. At the one end, you've got the main fire to keep you warm, and on the other, you've got hot coals that are perfect for cooking.

How to make it: Start by marking out a keyhole shape in the dirt with stones, creating a circle at least 2 feet (61 centimeters) in diameter attached to a rectangle big enough to accommodate the cookware you want to use. Next, create your favorite fire in the main ring — a teepee or log cabin works well here. Light the fire about an hour before you plan to cook so it has time to create the coals you need. Rake those coals into the rectangle section as they become available, then place your cookware on top and get cooking!

Experience

Build your own fire, then describe how you built it with step-by-step directions. Take pictures or video and upload them to your e-portfolio.

1-2 YEARS IN PROJECT

Identify the pictures of the campfire and match them with the name from the word bank.
Check your answers below.

- | | | |
|------------|--------------------------|------------|
| A. Lean-to | B. Star | C. Keyhole |
| D. Swedish | E. Log Cabin/Criss Cross | |
| F. TeePee | G. Upside Down | |

1. _____



2. _____



3. _____



4. _____



5. _____



6. _____



7. _____



Answer Key: 1.C, 2.A, 3.E, 4.D, 5.F, 6.B, 7.G

Activity 3

First Aid Kit

Project Outcomes

- Create a simple outdoor recreation first aid kit

First-aid kit checklist

Kate Elkins is an Emergency Medical Services (EMS) and 911 specialist in the Office of EMS and the National 911 Program. An active paramedic, Elkins also responds to 911 calls and serves as a medical specialist with Maryland Task Force 1, a FEMA urban search and rescue team. First-hand experience has shown her how important having a well-stocked and maintained first aid kit can be. “There are certain things you need to have at hand in the moment. In a crisis, you’re not going to have time to go to the store to get what you need,” Elkins points out.

The American Red Cross suggests that a first-aid kit for a family of four include the following items:

- A first-aid guide
- 2 absorbent compress dressings (5 x 9 inches)
- 25 adhesive bandages (assorted sizes)
- 1 adhesive cloth tape (10 yards x 1 inch)
- 5 antibiotic ointment packets
- 5 antiseptic wipe packets
- 2 packets of aspirin (81 mg each)
- 1 emergency blanket
- 1 breathing barrier (with one-way valve)
- 1 instant cold compress
- 2 pair of nonlatex gloves (size: large)
- 2 hydrocortisone ointment packets
- 1 3-inch gauze roll (roller) bandage
- 1 roller bandage (4 inches wide)
- 5 3 x 3-inch sterile gauze pads
- 5 sterile gauze pads (4 x 4 inches)
- A thermometer (non-mercury/non-glass)
- 2 triangular bandages
- Tweezers



Remove, throw away, or use and replace any supplies before they expire. Set a calendar reminder on your smartphone to update the supplies in your kit every six months and/or as the healthcare needs of your family change.

Find the items you have around the house or something you can put in a sandwich bag. Work on this to make it for one child for an outdoor hike. Here’s a checklist for you to

assemble your first aid kit.

Use a  mark for each item when you add it to the kit.
 Explanation or Scenario Use

	A box or bag to carry your first aid kit in	
	A first-aid guide (CTRL + click will take you to the website)	
	2 absorbent compress dressings (5 x 9 inches)	
	25 adhesive bandages (assorted sizes)	
	1 adhesive cloth tape (10 yards x 1 inch)	
	5 antibiotic ointment packets	
	5 antiseptic wipe packets	
	2 packets of aspirin	
	1 emergency blanket	
	1 breathing barrier for CPR	
	2 pairs of nonlatex gloves	
	2 hydrocortisone ointment packets	
	1 3-inch gauze roll bandage	
	1 roller bandage (4 inch wide)	
	5 3x3-inch sterile gauze pads	
	5 4x4-inch sterile gauze pads	
	2 Triangular bandages	
	Tweezers	

Customize your Kit

Think about the healthcare needs of your family when putting together a first aid kit. For example:

- If you have a family member with a severe allergy, include antihistamine medicine and an epinephrine injector (epi-pen).
- If you have elderly family members with fragile skin, including a roll of paper tape can be useful for protecting delicate skin.
- If you or a family member lives with diabetes, include a juice box, glucose tablets and gels, and an emergency glucagon injection kit.
- Chewable, baby aspirin might help someone who has coronary artery disease, provided the person is not allergic to aspirin.

Elkins also suggests attaching a note to your kit with instructions on where to find other items around the house and how to act in specific emergencies. For example, you can use a note to remind you where sugary drinks and foods are kept in case of a diabetic emergency.

Experience

Practice applying the knowledge you've learned. Given the following scenario explain what items you might need to use:

After a hike with a friend, you find your hiking companion in need of first aid. The hiker has an abrasion on one knee, a cut on one forearm, and has collected a few thorns from briars around both ankles. What items might you need from your first aid kit to help your hiking companion?

Activity 4

Snacks for the Road

Project Outcomes

- Prepare a nutritious snack to take on an outdoor adventure

Having healthy snacks with you on a hike may be one of the most important things to take. What would happen if you got lost and ran out of food? A human can survive for three weeks without food, but it is best not to chance it. Here are some great snacks to carry with you into the forest.

Trail Mix

Dried fruits and berries, granola, nuts, and seeds are the basics you need to make a good batch of trail mix. There are some significant health benefits to these ingredients. Throw in some pumpkin seeds which are a great source of protein, phosphorus, magnesium, manganese, zinc, iron, copper, B vitamins, vitamin K and vitamin E. Walnuts are a great addition since studies have shown they support brain health.

- **Power Couple:** Goji berries, pistachios, dried blueberries, flax seeds, dark chocolate chips
- **Peanut Butter Nutter:** Banana chips, peanut butter chips, peanuts, almonds, dark chocolate chips
- **Monkey Business:** Banana chips, peanuts, sea salt, almonds, dark chocolate chips, raisins, coconut flakes

What are some ingredients that you might like to include in your own homemade trail mix? Why would you include those ingredients?

Other healthy snacks you could include are listed on the next few pages:

Smoked Almonds

This is one easy hiking food only takes about 10 minutes of prep and the result is delicious. You can eat these on their own, or you can add them to trail mix or homemade granola bars. Almonds are an excellent source of protein, fiber, vitamin E and magnesium, so snack away with no regrets!

Ingredients List:

- 1 egg white
- 2 teaspoons garlic powder
- 2 teaspoons celery salt
- 1/4 teaspoon salt
- 1/2 teaspoon liquid smoke flavoring
- 3 cups whole unblanched almonds, toasted and cooled

In a bowl, whisk egg white until foamy. Add garlic powder, celery salt, salt, and liquid smoke; stir until blended. Add almonds and stir until well coated. Evenly spread almonds in a 15-in. x 10-in. x 1-in. baking pan coated with nonstick cooking spray. Bake at 300°F for 30 minutes, stirring every 10 minutes. Cool and enjoy.

Now if it is possible for you, gather the ingredients listed above. Put your snack together. Are there changes you will make? Did you alter the recipe?

Turkey Jerky

This hiking snack isn't super quick to make, but it's worth the effort. It's also better for you than beef jerky. Turkey jerky is a great source of lean protein, so it'll give you the boost you need without piling on all the extra calories of fattier hiking food. If you want to avoid the labor of making this one, pick some up from your favorite local grocer.

Ingredients List:

- Turkey Breast (2lbs)
- Salt and pepper
- Kabob Skewers

Under supervision of a parent or guardian, preheat the oven to 200°F. Thinly slice the turkey breast (the thinner, the better). Salt and pepper each strip, front and back. Skewer the strips of seasoned turkey with the kabob skewers and hang the skewers from the upper rack of your oven. Leave the oven door slightly ajar (an inch or so should do it). Bake strips anywhere from six to ten hours, checking on them periodically. The jerky is done when you can bend the strips and they crack, but do not break.



Roasted Spicy Chickpeas

One of the great things about roasting chickpeas is that the body will digest the carbohydrates rather slowly, meaning you'll stay full for longer, and that's what we're all looking for in great hiking food. These guys will keep you going and going on the trail, and they add lots of nutritional value to your diet. Roasted chickpeas contain vitamin A, magnesium, potassium, and sodium.

Ingredients List:

- 2 (15-ounce) cans chickpeas, also known as garbanzo beans, thoroughly drained and rinsed (about 3 cups)
- 2 tablespoons olive oil
- 1 teaspoon ground cumin
- 1 teaspoon chili powder
- 1/2 teaspoon cayenne pepper
- 1/2 teaspoon sea salt

Under supervision of a parent or guardian, preheat the oven to 400°F and arrange a rack in the middle. Place the chickpeas in a large bowl and toss with the remaining ingredients until evenly coated. Spread the chickpeas in an even layer on a rimmed baking sheet and bake until crisp, about 30 to 40 minutes. Cool and enjoy.



Blueberry-Banana Peanut Butter Bars

You can make this recipe in less than an hour, and these little bars pack a great punch that will keep you satisfied longer. Dried blueberries are a vital addition to this hiking snack because they're high in vitamin K and vitamin C. Vitamin K is great for strengthening bones, and vitamin C is great for healing and building collagen that fights the effects of free radicals. The peanut butter and banana will also add protein, fiber, potassium, and antioxidants that will keep you feeling great all day.

Ingredients List:

- 1/3 cup honey
- 1/4 cup brown sugar
- 1/4 cup peanut butter
- 2 cups high-energy cereal made of strong flakes, crushed
- 1/2 cup dried blueberries
- 1/3 cup slivered almonds
- 1/4 cup banana chips
- 1/3 cup white chocolate chips

Break the banana chips into small pieces and set aside. Heat the honey and brown sugar in a large pot and simmer for 1 minute. Remove the pan from the heat and stir in the peanut butter. Add the remaining ingredients and combine well. Coat the bottom and sides of an 8-inch square pan with vegetable oil. Scoop the mixture into the pan and pack down evenly. Freeze for 30 minutes. Transfer the pan contents to a cutting board. Allow it to return to room temperature and then cut into 10 bars. Wrap bars in waxed paper and store in ziploc bags.

Experience

Now that you have had an opportunity to make some of your own snacks for hiking, complete the following chart of snack fuel consumption.

When did you eat your item? What item did you consume? How many did you consume (ex: 14 nuts, 3 six-inch pieces of jerky, two peanut butter bars)? Was your hunger satisfied? Answer the questions on the chart below.

Time	Item	Qty	Hunger Satisfied?

Activity 5

Preparing Your Shelter

Project Outcomes

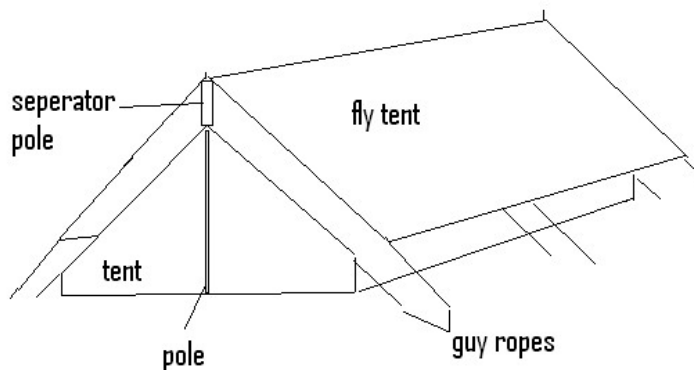
- Demonstrate how to set up a tent or a hammock

Depending on what type of tent or hammock you have, there will be different ways to set it up. Some hammocks will be easy to hang if you have portable straps to go with them. Some tents may come right out of their bag and pop right up. Others you will need to set up using the directions. It is important to mention you might need a sleeping pad for both setups to provide a barrier from cold either on the ground or in a hammock.

It is important to always set up your tent or hammock before you leave home. This way when you have reached your destination for the night, you will not be setting the shelter up for the first time.

Wherever you are going, you will need shelter. Some hammocks will not offer shelter, only fabric under you. You may choose to set your hammock up under some trees or even near a building if possible. Having a place to attach your straps will be important. That may be two trees that are within a short distance of each other or a tree and a pole. Either way, there will need to be something to strap the hammock to for support. Also, try to do as little damage as possible to trees you might use and avoid screws or nails in trees.

Most tents will have the following parts included. They may not look the same and they may not be called the same things, but the design will be similar.



Often, tents come in different shapes and sizes. Some have multiple rooms while others have porches. Some have enough headspace for a person to stand up. Others have only enough space to crawl into and zip up.

TYPES OF TENTS	
DOME TENT  +Freestanding +Easy setup +Good in bad weather -Limited space	EXTENDED DOME  +Semi-Freestanding +Easy setup +Extra space +Vestibules or extra rooms -Not much headroom
TUNNEL TENT  +Good headroom +Versatile layouts -Not freestanding -Bad in windy weather -Can trip on guylines	CABIN TENT  +Spacious +Patios and multiple rooms -Not freestanding -Not for bad weather -Huge footprint -Heavy and bulky
GEODESIC TENT  +Freestanding and sturdy +Withstands severe weather +Suitable for winter camping -Not many options -Difficult to pitch -Often expensive	ROOFTOP TENT  +Can camp anywhere you can park +Easy setup +Flat sleeping surface -Need to be mounted -Fall risk -Bad in windy weather

TYPES OF TENTS

POPUP TENT



- +Quick and easy setup
- Easily blow away in wind
- Condensation
- Lack features

BIVY SACK



- +Fast and easy setup
- +Lightweight
- Condensation
- No storage
- Claustrophobic

PYRAMID TENT



- +Ultralight options
- +Can use trekking poles to pitch
- Not freestanding and are unstable
- Pole in middle of tent
- Very little headroom

A-FRAME/RIDGE



- +Ultralight options
- +Can use trekking poles to pitch
- Not freestanding and unstable
- Not great in bad weather
- Limited headroom

Like tents, hammocks come in all different layouts. Some of the ones you will find on the market look like these below. Some are hooked to trees, while others are strapped or tied.



Experience

Now that you know the basics of camping, put into practice what you have learned. With a trusted adult, plan an overnight hike soon.

Before you depart for your overnight hike, take your tent or hammock and set it up in your yard. Take pictures as you set them up and add those pictures to your e-portfolio to show that you have mastered this skill. If you don't have a tent, use a tarp and some limbs. Explain the options for shelter preferences. Is one better than another?

Unit 2: Fishing



Activity 6

Tennessee Laws and Regulations for Fishing

Project Outcomes

- Summarize local laws and regulations related to fishing

Knowing the Tennessee Laws and Regulations for Fishing is essential to having a great and rewarding experience. The TWRA lists many useful links on their website including:

- Statewide Regulations
- Exceptions
- Where to Fish
- Fish ID
- Buying a license
- Invasive Species
- Records

<https://www.tn.gov/twra/fishingregs.html>

Experience

Thanks to the Tennessee Wildlife Resources Agency and Tennessee 4-H, you can apply for a free fishing license or renew your fishing license at the link. Go to the site today and register.

<https://www.tn.gov/twra/>

After you obtain your free fishing license, write down the steps you took to order your free license.

Activity 7

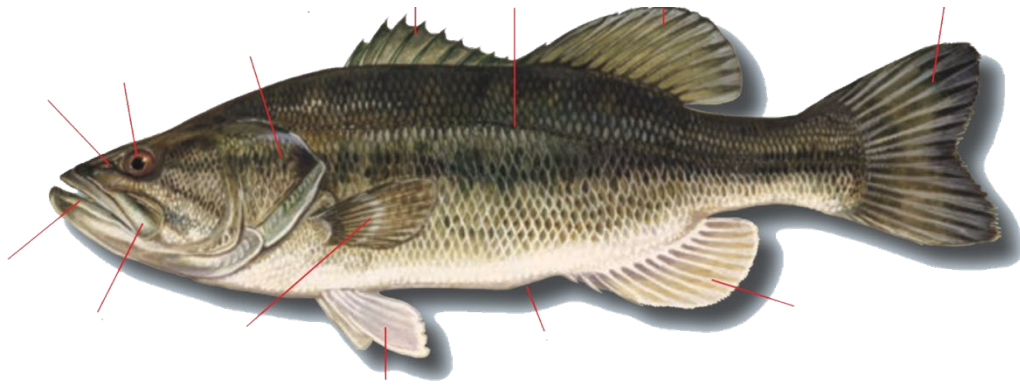
Here, Fishy, Fishy

Project Outcomes

- Identify the basic parts of a fish (anatomy)

Fish anatomy is the study of the form of fish. This is a complex way to say parts of a fish. To better identify fish, it is important to know their anatomy. Visit the TWRA's Angler's Guide and label the 13 parts of the fish below. Then describe how certain parts help fish function.

<https://www.tn.gov/content/dam/tn/twra/documents/fishing/anglersguide.pdf>



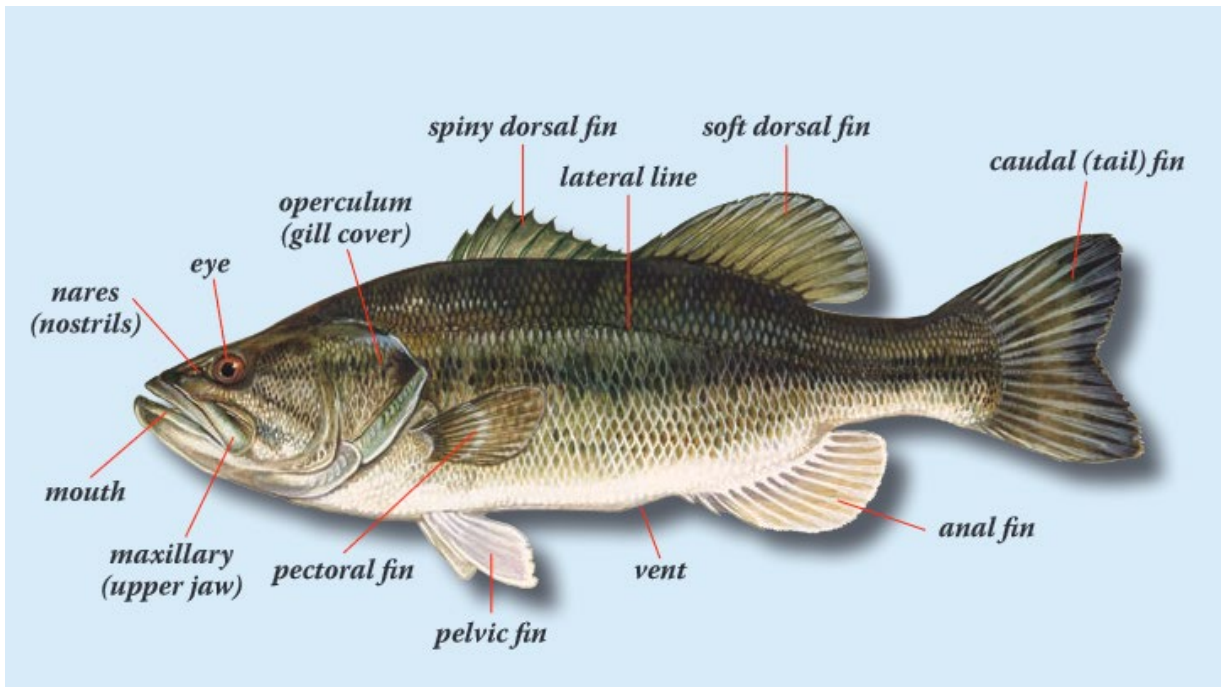
Eyes: _____

Fins: _____

Gills: _____

Mouth: _____

Nostrils: _____



A fish uses external parts and physical traits to help it survive in the environment.

By knowing the anatomy of a fish, you can recognize the smallest differences among fish species. Let's watch this video by Bass Pro Shops on how to differentiate between three different types of bass.

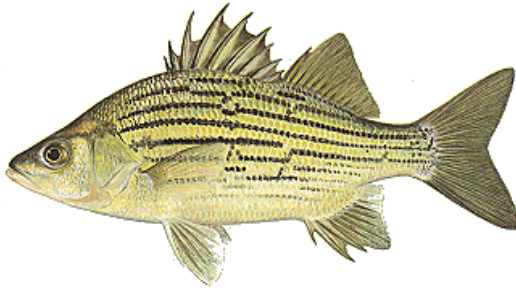
Using the lines below, describe the differences between the three bass species you learned about in the video.



Experience:

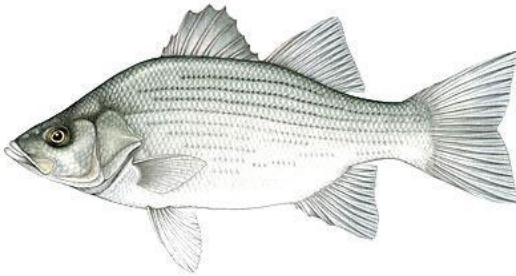
Now, identify these three bass found in the TWRA's Angler Guide.

Fish Name: _____



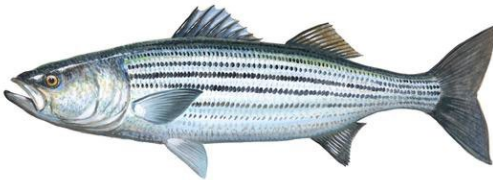
Scientific Name	Other Name(s)
<i>Morone mississippiensis</i>	Brassy Bass Striped Jack Stripe Yellow Belly Barfish

Fish Name: _____



Scientific Name	Other Name(s)
<i>Morone chrysops</i>	Stripe Stripe Bass Sand Bass Silver Bass

Fish Name: _____

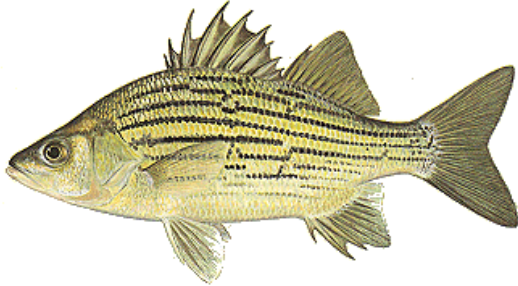


Scientific Name	Other Name(s)
<i>Morone saxatilis</i>	Rockfish Striper Rock Linesides

Though these bass are a part of the same fish family, they are their own species. Knowing the anatomy and physical traits will allow you to see the small differences in fish and identify the species.

In the graph below, list the characteristics of the three bass you just learned about – yellow bass, white bass and striped bass.

Fish Name: _____

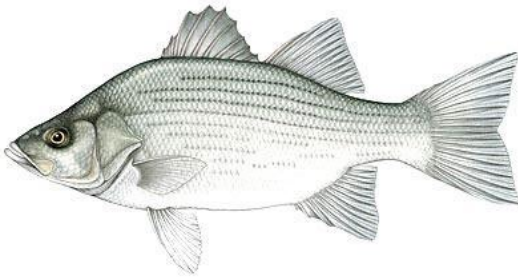


Scientific Name

Morone mississippiensis

Characteristics

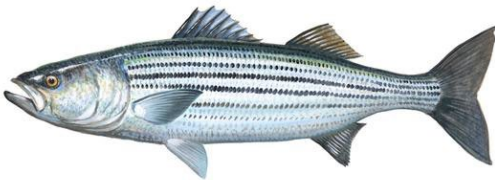
Fish Name: _____



Scientific Name

Morone chrysops

Fish Name: _____



Scientific Name

Morone saxatilis

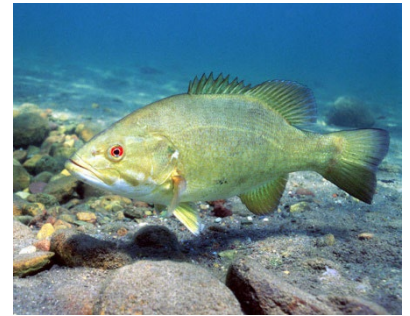
Activity 8

Let's Go Fishing!

Project Outcomes

- Compare and contrast spin casting, spinning, and bait casting
- Label the basic parts of a fishing rod.
- Describe elements of safely casting a line.
- Define the following terms: tackle, lure, line weight, game fish

Tennessee has an official state sport fish, and it is a species of the black bass. It is the smallmouth bass. We know that fishing can be fun and recreational. You might even already fish with your friends and family. However, fishing can also be done for other purposes, like commercial and artisanal.



Using the TWRA Fishing Guide, let's define these three purposes of fishing to better understand the capture methods.

<https://www.tn.gov/content/dam/tn/twra/documents/guide/Fishing-Guide.pdf>

Recreational Fishing: _____

Commercial Fishing: _____

Artisanal Fishing: _____

There are five common forms of capture methods for fishing. Do you think you could name them? Let's give it a try.

1. _____
2. _____
3. _____
4. _____
5. _____

You might have listed hand-gathering, netting, angling, spearfishing and trapping. It is equally important to understand the common capture methods. Try to define each capture method below.

Angling: _____

Hand-gathering: _____

Netting: _____

Spearfishing: _____

Trapping: _____

Before you start fishing, you need to learn fishing safety for those around you while fishing, the fish and yourself. Watch the video via the QR code.

Name two things you should wear while fishing.



What should you have while fishing in open water?

What do you need to do before touching a fish?

Describe how you hold a fish. _____

What do you do if you use live bait? _____



Have you ever used a fishing rod? If not, that's okay! We're going to go over the parts of a fishing rod by watching the video linked to the QR code on the left.

Let's check your newly gained knowledge!

In what type of fishing would you use the rod below? _____

That's right, angling. Make sure to check your answers of your fishing rod diagram below. Also, how do each of these parts work?



What is each part of the rod and reel for?

_____ - _____

_____ - _____

_____ - _____

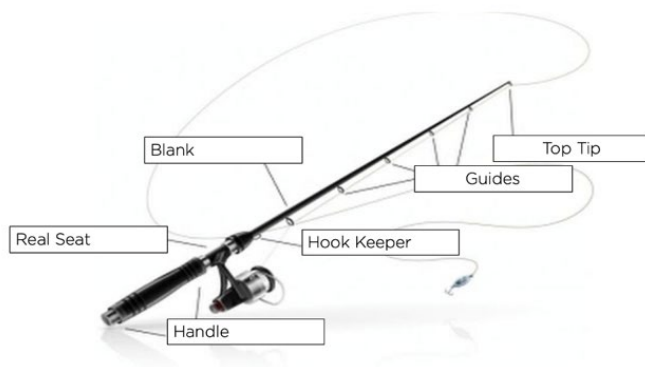
_____ - _____

_____ - _____

_____ - _____

We now know the methods to capture fish and the basic parts of a fishing rod, but you are probably asking yourself – how do I attract the fish? There are two types of fishing bait: artificial and natural.

Using your prior knowledge, explain what you think the difference is between **artificial** and **natural** bait.



Experience

Get a fishing pole and get in some practice!

Now, try to give an example of each.

Artificial Bait: _____

Natural Bait: _____

That's right, you might use artificial baits like crank baits, plugs, jigs, spinners or poppers. Natural baits you might use would be worms, insects or frogs. In Tennessee, salamanders, live fish and crayfish cannot be used in waterways.

Like you previously learned, the smallmouth bass is Tennessee's sport fish. Learn about the basic needs for bass fishing by watching the following video.



Experience

List three baits mentioned in the video. If you need help learning the names or spelling them, click "CC" to display closed captioning or subtitles. Also, compare/contrast real vs. artificial baits with the examples.

Thinking about the video, use the space below to list five new things you learned about fishing.

1.

2.

3.

4.

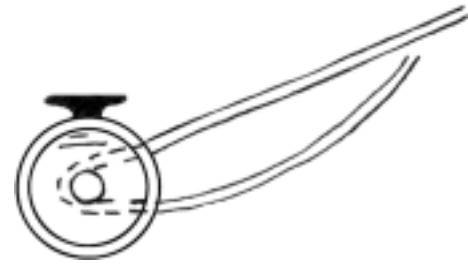
5.

Knot-Tying Section

Arbor Knot

Learning how to tie an arbor knot is very simple. This knot is one of the easiest ways to attach your line around the reel spool.

1. Thread the line around the reel arbor.



2. Tie an overhand knot around the line itself. Then just tie a second overhand knot in the tag end. This second knot keeps the line from slipping through the first.



3. Grab on either side of the knots and pull tight. Cut off the excess. Then slide the first overhand knot down the line to tighten it around the reel arbor.



Albright Knot

The Albright Knot is commonly used for joining two lines of unequal diameters. It can also be used for connecting monofilament to wire.



1. Make a loop in the tag end (the short end that is being used to tie the knot, not the long end of the line) of the heavier line.



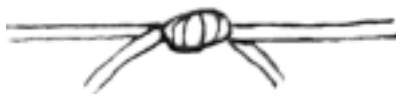
2. Run the lighter line through the loop and down around an inch of the loop's length. Twist the lighter line around the loop 8 or 9 times.



3. Run the tag end of the lighter line through the loop toward the main shaft of the lighter line.



4. Wet the knot and pull it tight.



5. Trim the excess.



King Sling Knot

This knot is primarily used to attach crank baits to the line. The King Sling Knot allows you to make a natural presentation.

Pull about 10 inches of the line through the eye of the lure and double the line.

Form a loop in the line.



Twist the double line three or four times.



Pass the lure through the loop.



Pull the tag end and the main line until the knot tightens.



Palomar Knot

The palomar knot is another very quick and easy knot to tie. It works well for attaching your hook to your line.

1. Double the line over to make a loop. Then feed the loop through the eyelet of the hook.



2. Hold the standing line and form an overhand knot as shown.



3. Pass the hook through the end of the loop.



4. Then pull on the hook, the standing line and the tag end of the line to tighten the knot. Pull down tightly around the eyelet.



Double Surgeon's Loop

The double surgeon's knot is a quick, easy way to tie a loop in the end of a leader. It can also be used to form a quick loop to attach a lure or hook.



1. Double the line over to form a loop. Make a single overhand knot in the doubled line, making sure to not tighten the knot down yet.



2. Then, bring the loop end around and through the overhand knot hole. Holding the loop in one hand, and the tag end and standing line in the other hand, gently pull to snug the knot down.



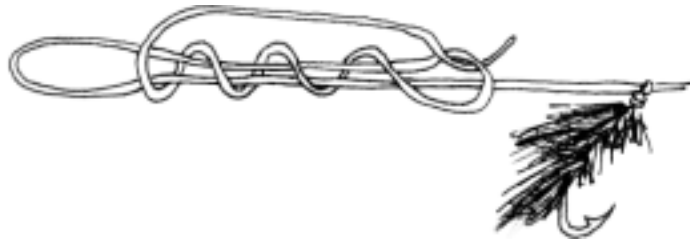
3. Moistening the knot with water first will help to lubricate the line. Then the line will slide more easily and form a tighter knot. Trim tag end to about 1/8 inch.



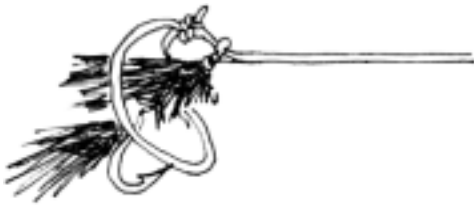
Specialist Fly Knot

This knot is used to attach the fly to the leader.

1. Place the fly on the leader and slide the fly up the leader out of the way before beginning the knot.



2. Make an oval loop and hold each end while wrapping the leader around the loop center 3 or 4 times.



3. Place the end of the leader through the loop closest to the fly and snug the knot.



4. Trim the knot and pull snug.



Wedge Knot

This knot is also general purpose, used to join a fishing line to a leader.



1. Tie an overhand knot in the end of the fly line.



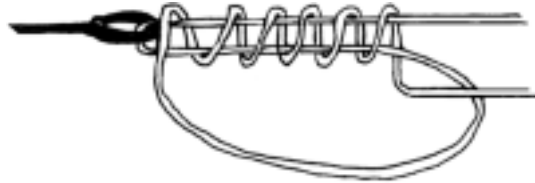
2. Pass the fly line and knot through the leader loop and back around to form a knot.
3. Pull both ends and tighten up the knot.



The Uni-Knot

The uni-knot is a general purpose knot.

1. Run the line through the eye of your hook or lure. Bring about 6 inches through the eye. Take the tag end and bend about half its length back towards the eye in a circular loop.



2. Twist the tag end around the double line through the circular loop about 6 times. Pull the tag end through the loop.

3. Tighten the knot up against the eye.



4. Pull the knot until it is tight. Trim the excess.

Snell Knot

The snell knot is a good knot to choose when fishing with a separate leader. It can only be used with a leader, since it uses both ends of the line to tie it.

1. Feed one end of the leader through the hook's eye, going 2-4 inches past the eye. Then feed the other end of the leader through the eye in the opposite direction. Hold the hook and leader ends between thumb and forefinger. Allow the excess leader to hang down in a large loop.



2. Holding the hook and leader in your left hand, grab this excess leader loop and the part of this loop close to the hook and wrap it over the hook shank and both ends of the leader toward the hook's barb. Go around the hook seven or eight times, keeping the newly made wraps contained and tight with your left thumb. Pull the short end of the leader that is through the eyelet with your right hand slowly until the entire loop of the leader feeds through it. Be sure to continue holding the seven or eight loops with your left hand so the knot will not unravel.



3. When it is almost tight, use your fingernails to slide it up against the eye of the hook. Finally, pull the short end of the leader and the standing line at the same time to completely tighten the knot. Trim the tag end.



Experience

Tie a hook for bait or a lure onto the line with your choice of knot.

Unit 3: Firearms



Activity 9

Safe Handling Methods for a Firearm

- Describe the importance of basic firearm safety
- Discuss the rules and regulations for transporting and storing firearms
- Identify the major components and uses of rifle, shotgun, and pistol

Guns are powerful tools that demand respect and responsibility. This guide is here to help you develop a clear understanding of the importance of gun safety, regardless of whether you encounter guns at home, at a friend's house, or on TV. By learning about gun safety, you're taking a big step towards becoming a responsible and informed individual.

The 10-Commandments of Gun Safety

- 1) Treat every gun with respect, as if it is a loaded gun.
- 2) Watch that muzzle! Be able to control the direction of the muzzle even if you should stumble.
- 3) Be sure that the barrel and action are clear of obstructions, and that you only have ammunition of the proper size for the gun you are carrying.
- 4) Be sure of your target before you pull the trigger.
- 5) Unload bullets from the gun when it is not in use.
- 6) Never point a gun at anything you do not intend to shoot.
- 7) Never climb a fence or tree or jump a ditch with a loaded gun.
- 8) Never shoot a bullet at a flat, hard surface or water.
- 9) Store guns and ammunition separately.
- 10) Avoid alcoholic beverages or drugs at all times but especially while shooting guns.

Rifle Vocabulary and Safe Handling Rules

Just like you wouldn't jump into a swimming pool without knowing how to swim, we don't want to jump into the world of rifles without knowing how to handle them safely. So, get ready to learn some important rules that will help you be a responsible and smart user of rifles.

In this section, we're going to learn common vocabulary about rifles. But hey, before we get started, let's make sure we're all on the same page about safety. Because being safe is our number one priority!

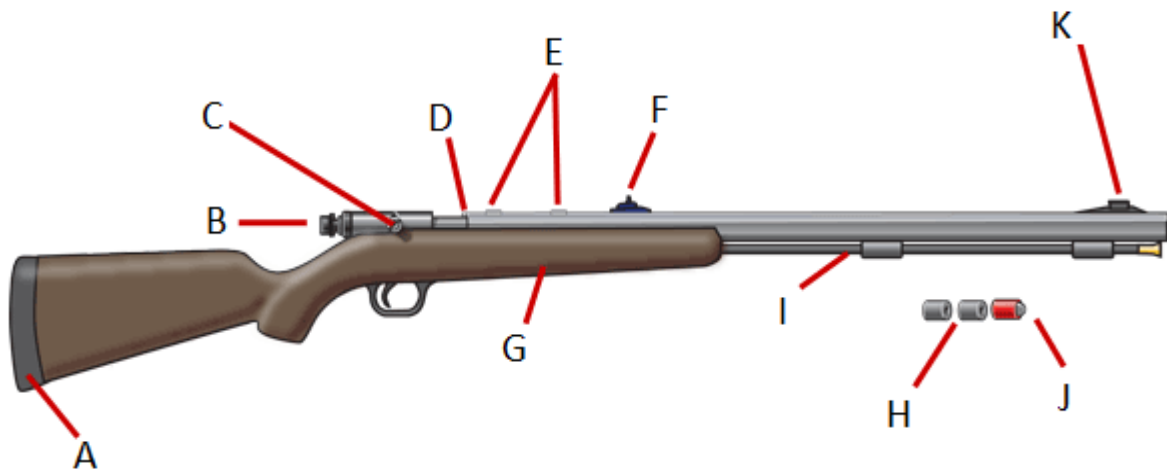
1. **Stock and Forearm**- the parts of the gun that you grip
2. **Barrel Muzzle** – the front of the barrel (Keep the muzzle pointed in a safe direction at all times.)
3. **Action** – the parts that load, fire, and unload the gun (Always keep the action open and unloaded until you are ready to fire.)
4. **Trigger** – the part of the action that releases the firing mechanism (Keep your finger off of the trigger until you are ready to shoot.)
5. **Safety** – Safety is on when red is not visible, safety is off when red is visible. (Always be careful because the mechanical device can fail.)
6. **CBI (Clear Bore Indicator)** - visible from the muzzle and action
7. **Three Fundamental Rules of Gun Safety**
 - a. Muzzle should always be pointed in a safe direction
 - b. Action should always be and empty and exposed to view until ready to shoot
 - c. Always keep your finger off the trigger until ready to shoot
8. **Ear and Eye Protection**
 - a. Safety glasses are ALWAYS REQUIRED in front of the safety line; ear protection required on rim-fire rifle
9. **Eye Dominance**
 - a. Check eye dominance
 - b. Explain why it is important
10. **Basic Sight Alignment**
 - a. Front sight and rear sights
 - b. Basic sight picture, front sight, rear sight, target, pumpkin on a post
11. **Cease Fire Command**
 - a. ANYONE can call it (it is everyone's duty to be safety conscious)
 - b. Repeated by EVERYONE when called
 - c. STOP what you are doing IMMEDIATELY, keep firearm pointed in a safe direction, open action, wait for further instruction

Basic Parts of Firearms

Now that we've learned about safety, it's time to take a closer look at the common parts of a firearm. Imagine a firearm as a puzzle, and each part is like a special piece that plays a crucial role. In this section, we'll introduce you to these puzzle pieces and help you become a pro at recognizing them.



Muzzleloader



Record answers below

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

Word Bank

Trigger safety
Stock
Pyrodex pellets
Bullet
Front sight
Rear sight
Scope mounts
Striker safety
Recoil pad
Ramrod
Breech

Storage of Firearms & Muzzleloading Equipment

Firearm Storage – Watch with your supervising adult

<https://youtu.be/cp1AFm83Va8>

1. All firearms will be stored unloaded in a safe with an open bolt or open bore indicator when not in use.
2. Keys and combinations should be available only to those who have proved safe use of firearms. That may just be your parents or guardians.

Ammunition

1. All ammunition, shotgun shells, rifle shells, pistol shells, powder, caps, BB's and pellets will be stored separately from the guns which use them. Access to the ammunition should have access limited.
2. Ammunition should be stored in a closet or room where there are at least two separate locks on the door.

Transportation of Equipment

1. All applicable local, state and federal laws are to be followed when transporting firearms and ammunition.
2. When transporting firearms, air guns, ammunition and muzzleloading guns, the transporter should have the guns in locked hard cases with gun locks on each gun (either a trigger style gun lock or a cable style gun lock).
3. Equipment should be transported in such a way that the equipment cannot be seen from outside the vehicle. Some examples of concealment include transporting in the vehicle's trunk, in a locked trailer, beneath a pick-up truck bed topper, etc. The vehicle should not be left unattended when equipment is being transported.

Basic Cleaning for Storage

<https://youtu.be/1VvOHhuoRkY?si=hKWnXpBbJuSOX90y>

Experience

Prove safe firearm handling with an adult. You and your supervising adult should watch both of the video links then clean if needed and properly store a firearm in a safe.

Activity 10

Eye Dominance and Controlled Breathing

Project Outcomes

- Define eye dominance and show someone else how to check their eye dominance
- Explain sight alignment
- Explain why proper breathing is important when firing a shot
- Consistently follow five fundamental safety rules (Muzzle control, Action open and empty, finger off trigger, Eye and ear protection, Personal responsibility)

If you've ever tried your hand at shooting sports, whether it's archery, riflery, or even hitting the bullseye in a game of darts, you know that hitting the mark takes skill, focus and a bit of science. One often overlooked aspect that can significantly impact your accuracy is something you might not even be aware of, your eye dominance.

Eye dominance refers to the eye that your brain prefers to rely on when processing visual information. Knowing your dominant eye is crucial because it directly influences your aim and accuracy in shooting sports.

Experience

To determine your dominate eye:

- Select a partner and stand squarely facing that partner two to three arm-lengths apart.
- One member of each pair needs to be an observer. The other member will be the “shooter.”
- Shooters should extend their arms forward with their hands in front of the waist and place one thumb on top of the other one.
- Keeping the thumbs in place, cross the fingers of the top hand over the fingers of the bottom hand to form a small triangle.
- Now, with both eyes open, extend the arms to eye height and look at the observer’s nose through the opening.
- The observer should note which eye they see looking back through the triangular opening.
- Then, keeping the nose centered in the opening, the shooter should slowly bring the hands back to his or her face. The opening will come to the dominant eye.
- The observer should watch for switching between the eyes as the hands move toward the face.

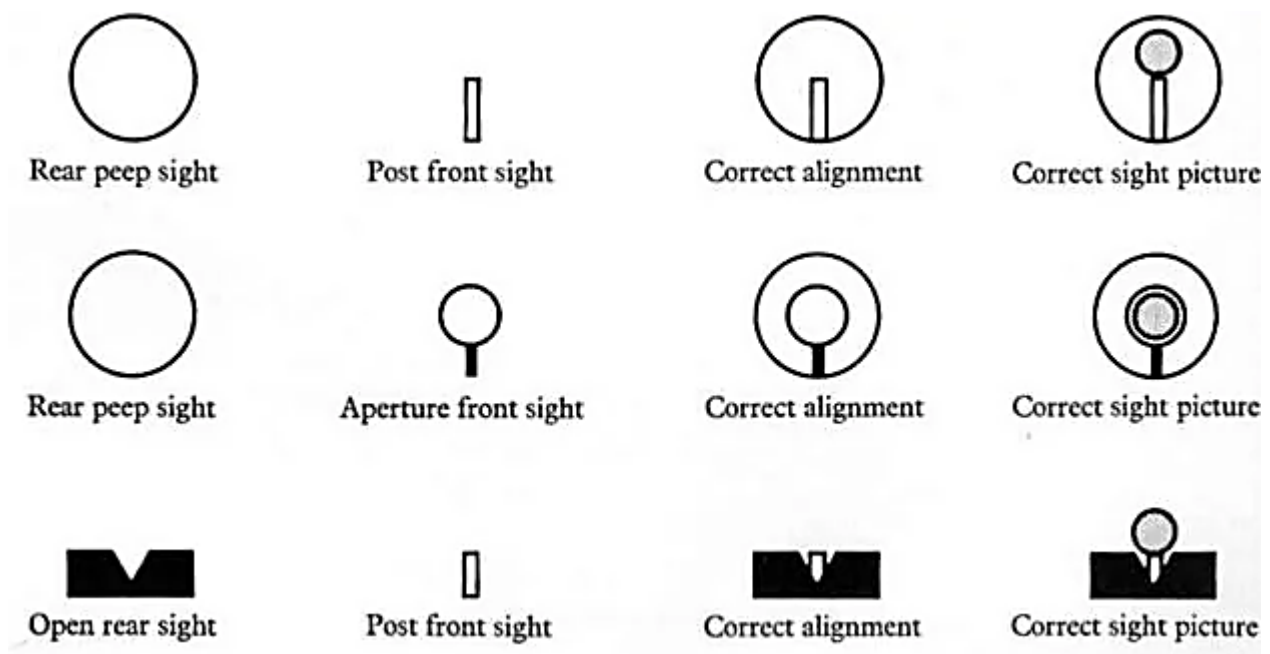
- The shooter should stand square to the observer without leaning, canting the head or squinting one eye.
- Try it a couple times to confirm your observation, then switch roles and repeat the process.
 - Ask, “How many of you came to your left eye? Right eye?”
- You should shoot with the dominant eye, regardless of whether it is on the same side as your dominant hand.
- As a follow-up, point at an object with both eyes open. Close your nondominant eye. Are you still pointing at it? Now repeat this process closing your dominant eye. How far did it appear your finger moved? Just another reason why eye dominance is extremely important.

Using the dominant eye reduces tension and eye fatigue and helps in seeing the target clearly and quickly. Keeping both eyes open increases depth perception as well. Those whose eye and hand dominance are on opposite sides are cross dominant. You should shoot from the dominant eye side, even though it feels clumsy and uncomfortable. Your hands and feet are much easier to train than your eyes. Even if you are already shooting from the “off-eye” side, you will improve more rapidly by switching to the dominant side.

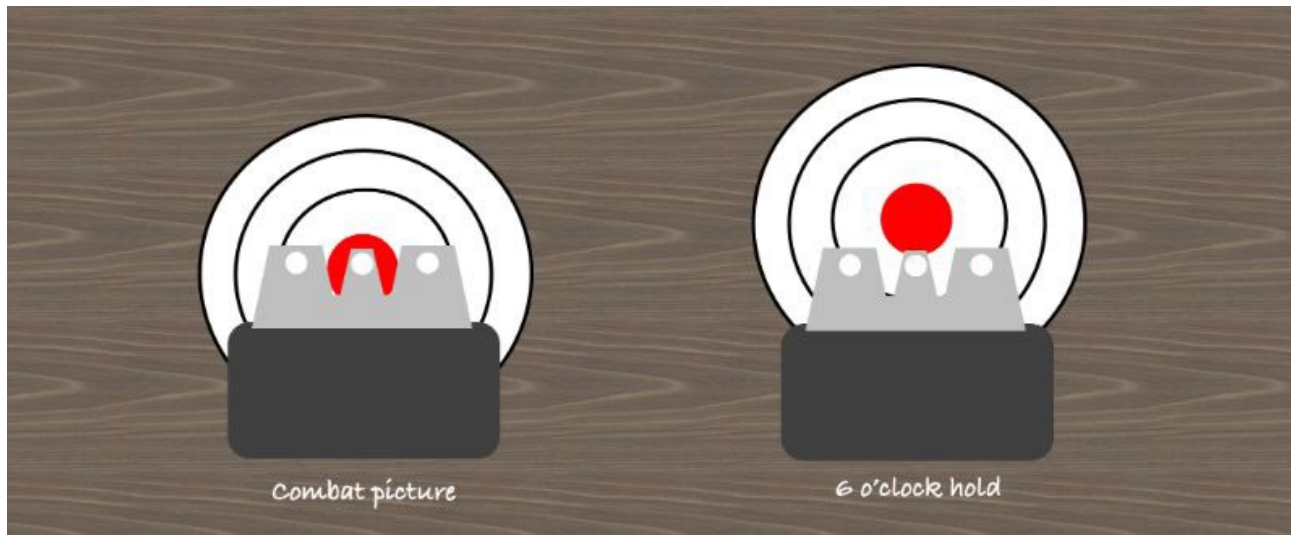
A few people are ambidextrous. A similar number are ambi-eyed, that is, their eyes switch dominance when an obstacle is placed in front of them. Shooters with this situation can use a shield, a spot on their shooting glasses or some similar barrier to assure the same eye is used every time they shoot. Even people with a specific eye dominance may find a barrier device helpful. Be sure you remember which eye is your dominant one so you can use that side in your shooting.

Sight Picture/Sight Alignment

A sight picture is a properly aligned set of sights in relation to a target. Proper sight alignment is essential for developing a sight picture. Throughout the sighting sequence, the eye should remain focused on the front sight. The rear sight and target will both be slightly out of focus. Once the sights are properly aligned, they are moved as a unit into proper position relative to the target. Below is a diagram with different sight setups for reference.



Two basic types of sight pictures are used in precision shooting, the center-of-mass hold and the six o'clock hold. With the center-of-mass hold, the aligned sights are centered on the intended point of impact. The bullet should strike precisely at the top of the post, the center of the aperture, or the center of the telescopic sight's reticle. With the six o'clock hold, the entire bull is centered on the top of the front sight. Also called the "pumpkin on a post," the six o'clock hold sight picture is considered somewhat more precise with a bead or post front sight. Many shooters prefer to see just a hair's breadth of lighter colored material between the top of the sight and the bottom of the bull. They feel it helps to keep them from drifting up into the bull slightly.



Both types of sight pictures have advantages and disadvantages. The six o'clock hold gives a somewhat more precise aiming point on a target. The exact location of the bull relative to the sight is easy to see, and the target is not obscured by the sights. In field shooting, no bull is present; and it may not be clear where to hold on the game animal relative to the top of the sight. The center-of-mass hold allows easier positioning of the sight on the game animal or target. In some cases, a large portion of the target is obscured by the sight while aiming. In field shooting, however, the point of impact on the animal is fairly clear and evident. Both types of hold or sight pictures are acceptable. Try them. See which one you prefer (which one fits your purposes and gives you better results) and stick with it. NEVER change sight pictures during a series of shots being fired as a group.

Sight pictures differ slightly with different types of sights. With telescopic sights, the optics cause both the reticle and the target to appear on the same plane. That leaves both in sharp focus. The crosshair, top of the post or dot is placed on the intended point of impact. With receiver sights (peep or aperture rear sights), a front post or bead is held either on the center-of-mass (the intended point of impact) or at the bottom of the bull (six o'clock hold). With an aperture front sight, the target is centered in the front aperture, just as the front aperture is centered in the rear one. With open rear sights, most shooters prefer a six o'clock hold; but a center of mass hold is also acceptable. The main thing to remember is to stick with one type of sight picture once you have decided which one gives you the best results.

Steady Aim and Positions

If you are a beginner, your first and greatest concern will be to hold the rifle steady. Do not be alarmed when the sights wobble; not even the world champion can hold a rifle quite "as steady as a rock." But regular practice will reduce the amount of wobble.

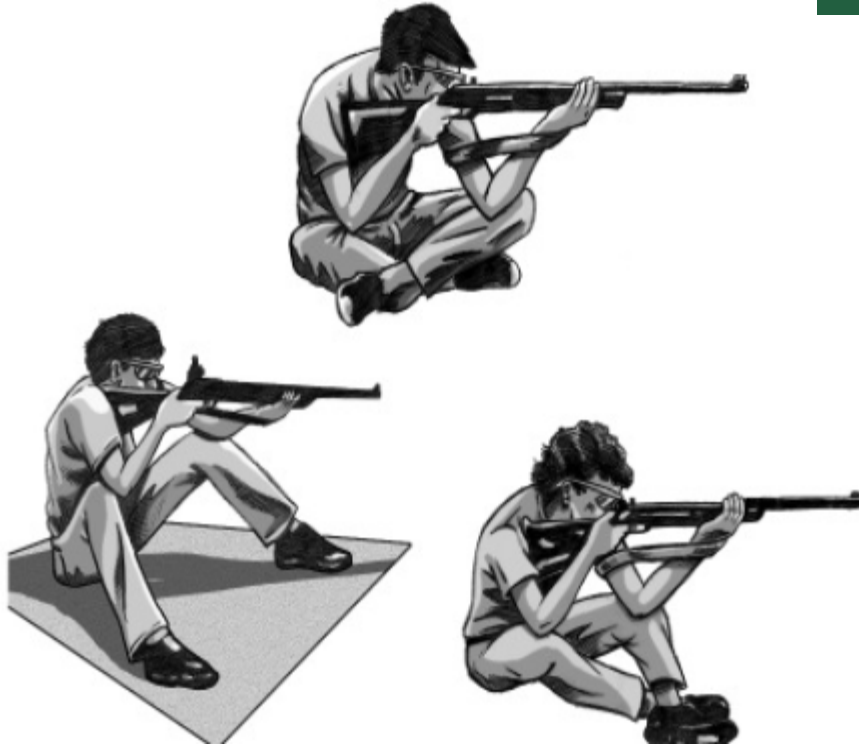
The first step in learning how to shoot is to practice in the prone position with an unloaded rifle until you have become reasonably steady and comfortable. This can be done in your own home during your spare time.



The prone position is recommended as a starter because it is the steadiest of all shooting positions and it will let you concentrate on aiming the gun and squeezing the trigger. After you have reached a reasonable degree of proficiency in the prone position, you can practice each of the other positions at home before trying them out on the range.

A gun sling will help you obtain a steady hold in all the positions normally used on a target range. Even the experts use the gun sling. The illustrations will show you how to assume these shooting positions, although you will find that it may not be possible for you to exactly duplicate them because you are not the same height or weight as the person in the picture. Once you have found a comfortable position, do not strain yourself by twisting the rifle to point at the bull's-eye. Instead, move your entire body and pivot on your elbow so that the rifle barrel naturally and logically points at your target.

There are three variations of the sitting position which are equally satisfactory: the open leg, crossed leg, and the crossed ankle positions. The position used depends entirely on the shooter. Because of different body confirmations, there are shooters who are unable to use the crossed leg or the crossed ankle positions; however, these two positions are used by the majority. You should try all positions and choose the one which affords the most stability and ease of sight alignment.



Experience

Of these two positions, which did you find easier to stay steady? Describe what you liked or disliked about it. Which of the three variations of sitting was most comfortable for you? Why do you think that is?

Trigger Squeeze

After you have become accustomed to taking up a comfortable position with the rifle and are familiar with the sight picture, it is time to practice the proper way to squeeze the trigger.

Assume a correct and steady prone position, aim at the bottom edge of the bull's-eye, and apply enough pressure on the trigger to take up the slack or preliminary pull.

Holding as steadily as you can, aim at the bull's-eye, and begin to close your hand, in order to squeeze the trigger slowly.

Increase the pressure gradually whenever the aim is right, holding the pressure when the front sight moves off the exact aiming point. During one of these periods when you are adding pressure the gun will be fired. You should not know the exact time this will happen.

At the instant the trigger is let off and the gun fires, try to "call the shot" - that is, try to catch with your sighting eye the exact position of the sights when the shot was let off. This practice is important in ensuring proper sight alignment until after the shot has been fired, corresponding to the "follow through" in golf and other sports.

The trigger-squeeze exercise teaches not only the proper let-off of the trigger, but the required coordination of holding and aiming along with it. The rifle should be taken down from the shoulder and the position resumed anew for each shot - snapping the rifle at your shoulder is of little value.

Take a deep breath, let out half of the air, and then hold the breath naturally- don't create internal pressure by consciously compressing the breath.

Experience

Two easy activities you can do to practice this require no rifle and household items. One method is to use a retractable pen with a top clicker. Hold the pen lightly with your thumb and middle finger and use slow constant pressure with your trigger finger. If the pen jumps, you need to slow down. Another method is by using a dropper, like a medicine or science lab dropper, filled with water holding it over a piece of paper. Hold the dropper the same as the pen and apply pressure only with your trigger finger. The goal is to get a single drop at a time to fall to the paper. If you see multiple drops, you need to go slower and apply lighter pressure.

Passing a Rifle

One of the most recognized ways of passing a rifle from one person to another is by using "thank you" and "you're welcome." In this situation the athlete holding the firearm with two hands waits for the recipient to put two hands on the firearm securing it and saying, "thank you." This confirms the second person has control and the original athlete then says, "you're welcome," stating that they are letting go. These two unique words are widely used and avoid any "got it" confusion.

Experience

Demonstrate proper gun passing with supervision. If a rifle or shotgun is unavailable, you can use a broom to demonstrate.

Targets

When selecting a target, make sure the target is appropriate for the firearm you are using. Also, make sure the space including the space beyond the target is clear and safe. For example, the .22 caliber rifle is a widely used firearm for youth; however, the .22 round can travel over a mile if unobstructed. Make sure there is a berm or backstop capable of stopping whatever firearm you choose to use.

Contact your local 4-H office for more information on shooting sports programs in your county.

Unit 4: Archery



Activity 11

The Importance of Safety

Project Outcomes

- Describe the importance of basic archery safety

Archery continues to be a sport involving hand-eye coordination, consistency, and the need for practice to become proficient. Archery remains a sport with relatively slow projectiles shot over relatively short ranges. Basic knowledge and awareness of common safety considerations are necessary for safe, responsible, and enjoyable use of archery equipment.

Clothing and shooter awareness is a concern. Make sure if you have longer hair, it is pulled back, and any hanging earrings or jewelry like necklaces are tucked away. Hoodie strings and loose clothing will also need to be tucked in.

For equipment, you should never pull back a bow without an arrow to avoid dry firing the bow. Also, take note of the 10 commandments of archery safety below.

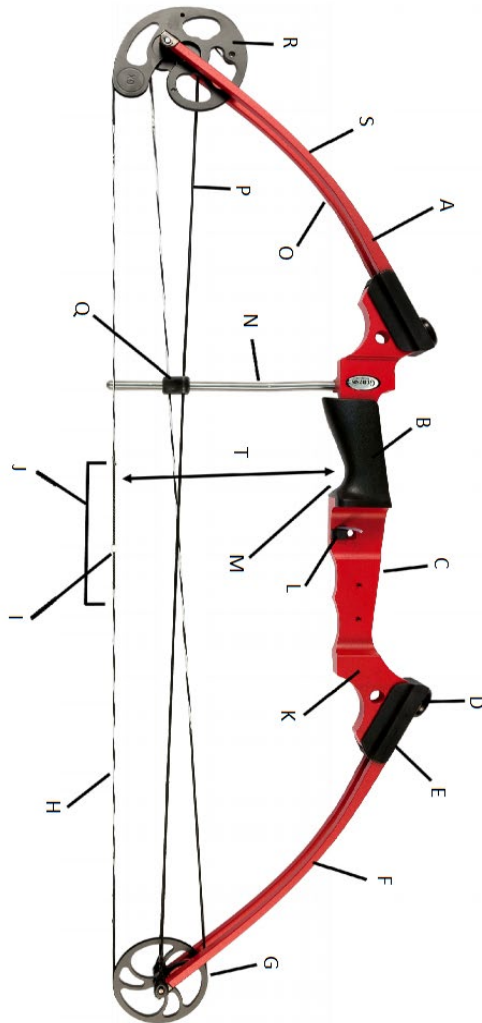
THE TEN COMMANDMENTS OF ARCHERY SAFETY

- 1) I will always treat my bow and arrows as a firearm and not point them at anything that I do not intend to shoot.
- 2) I will not nock my arrow or draw a bow when a person is in front of me, and I will always shoot toward a target.
- 3) I will never "dry" fire a bow without an arrow (pull back on a bow string with no arrow in place).
- 4) I will never shoot an arrow straight up.
- 5) I will never release an arrow where I cannot see the entire flight of the arrow.
- 6) I will never shoot an arrow that is too short for my draw or too weak for my bow.
- 7) I will not shoot at a target that is too thin to stop my arrow.
- 8) I will not shoot toward houses, highways, livestock, or where there are people.
- 9) When shooting with another person, I will not go forward to retrieve my arrows until an "all clear" sign has been given. When looking for arrows beyond the target, I will set an arrow in the top of the target to warn others that I am behind the target.
- 10) I will not use damaged equipment. I will check arrows before shooting, for loose feathers/vanes, points, and nocks, and repair before using. I will check for frayed strings and inspect arrows and bows for cracks and destroy them if damaged in this way.

Activity 12 Archery Equipment

Project Outcomes

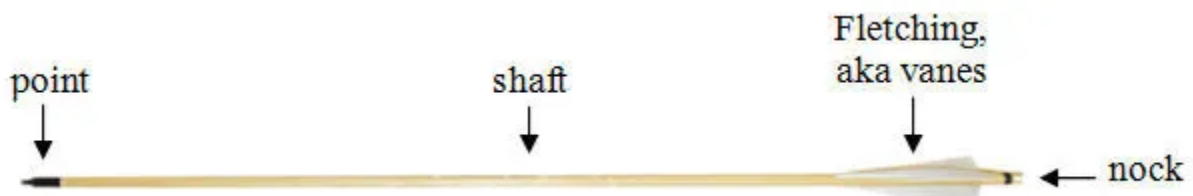
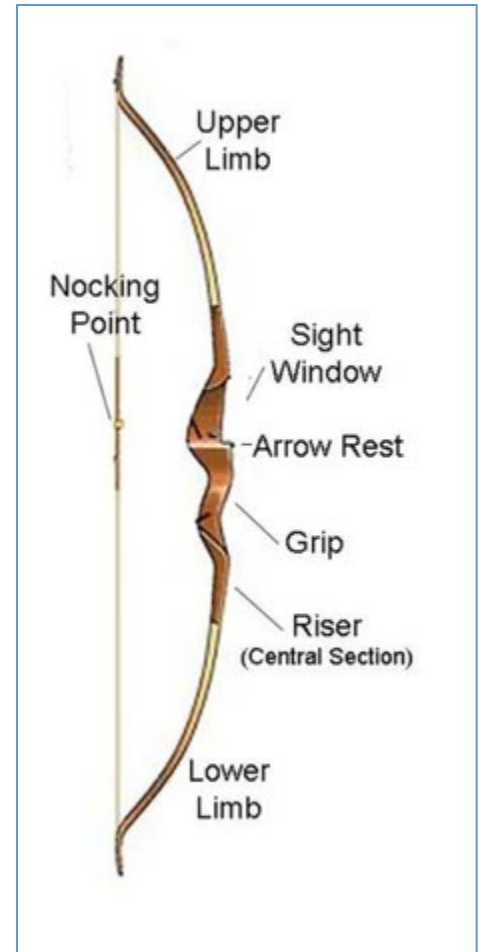
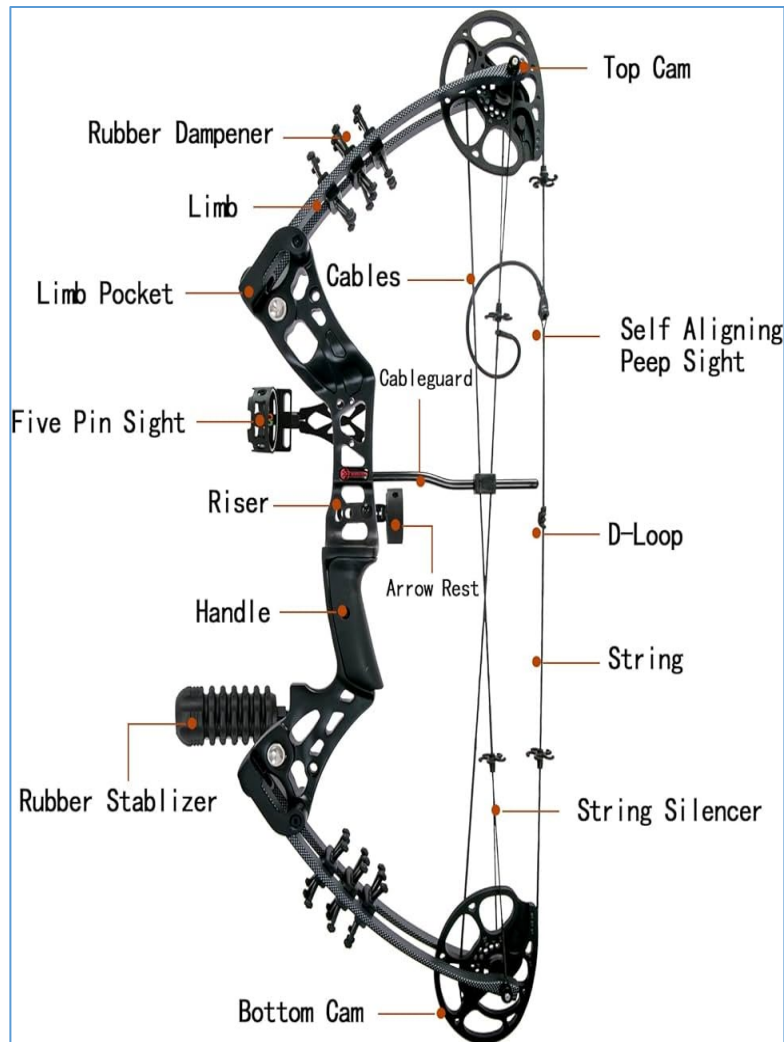
- Correctly identify the different types of bows
- Label the parts of all types of bows
- Name and identify the parts of an arrow
- Identify proper protective equipment (shoes, arm guards, release, finger guards)



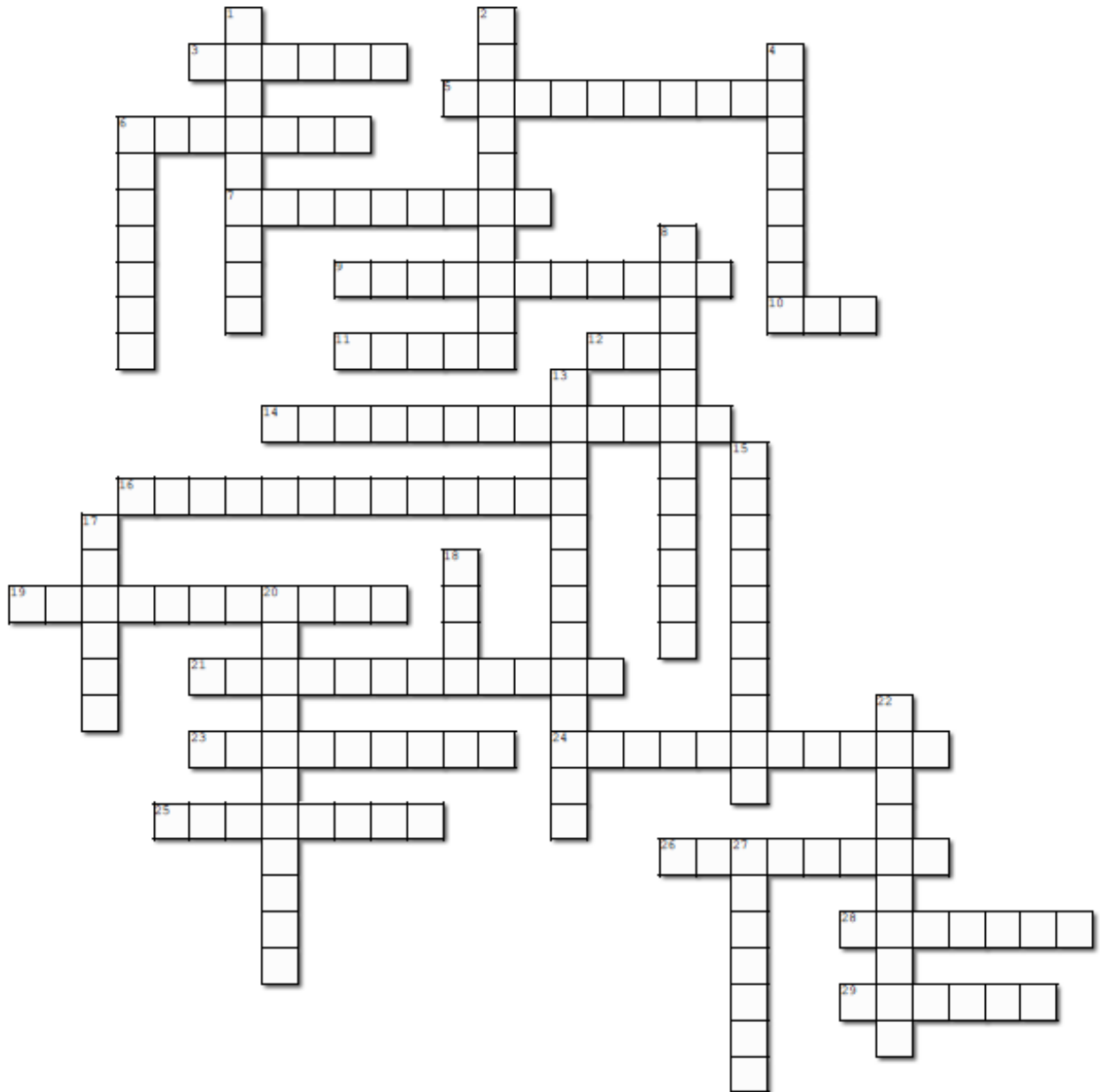
- A. _____
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____
- G. _____
- H. _____
- I. _____
- J. _____
- K. _____
- L. _____
- M. _____
- N. _____
- O. _____
- P. _____
- Q. _____
- R. _____
- S. _____
- T. _____

Word Bank

Limb Bolt	Bowstring	Riser	Idle Wheel	Nock Locator	Cable Guard	Cable
Brace Height	Grip	Cam	Lower Limb	Upper Limb	Cable Slide	Arrow Rest
Bow Face	Bow Back	Serving	Pivot Point	Limb Pocket	Sight Window	



Use the hints on the next page to find the answers for the crossword puzzle.



Across

3	A "bad" form habit developed from anticipating the release of the arrow. The result is a poor release, possibly in the jerking of the bow arm, or of the release.
5	Originally made of slate, these callers can also be made from glass, aluminum, titanium and other materials. Dragging a wooden, graphite, composite or metal striker across the surface produces turkey sounds.
6	Frightening a flock of turkeys in all directions in order to call them back into gun range during a fall hunt.
7	A gobbler that is spending most of the day with his harem of hens. Such gobblers are very difficult to call.
9	A small, two-piece box call.
10	The breeding season for cervids, which is in the autumn.
11	A means of judging a trophy by compiling a set of measurements of an animal's antlers, skull, or horns.
12	Where a deer or elk has staked out his territory by scraping away the bark of a small tree, leaving his individual scent behind.
14	A device for visually inspection of an arrow's "trueness" (shaft straightness, point or broadhead, or nock alignment), used by placing an arrow supported on each end, between two free running rollers.
16	An anchor locating device that is attached to the string, usually a small rubber or plastic disc that you fit in corner of your mouth on full draw and anchor. It helps keep a consistent anchor point, which is very important for consistent form and accuracy.
19	An electronic meter used to measure an arrow's speed coming out of the bow. The arrow is shot through a "window" in the device and gives out readings in fps (feet per second).
21	A consistently repeatable indexing point somewhere near your ear, cheek, behind your ear (if you're a release shooter), or possibly your lip or cheek, if you are a "fingers" shooter.
23	Scent carried by the wind.
24	Is the measurement of the length of the nock end of the arrow to the bows grip pivot point for an individual archer. This changes to fit the individual's particular size. (Arm length, anchor point, etc.)
25	Term used to describe a rabbit or squirrel that has eluded the dogs and/or the hunter by entering a tree cavity, hole in the ground or other such refuge.
26	The act of searching terrain for game by observing through binoculars or other magnified optics.
28	A device that serves the same function as a "draw stop" (for bows unequipped with draw stops) usually found on Olympic or FITA style recurves.
29	The dreaded "enemy" of good consistent accuracy. It is a "form" problem. Basically, it is holding, gripping, or releasing the bow in such a manner that the bow "twists", and your shot ends up being poor.

Down

1	The feathers or vanes on an arrow. Originally made of split turkey feathers, most vanes are now plastic.
2	A two-dimensional decoy.
4	Tool used to precisely align feathers or vanes that are being glued to an arrow during manufacturing.
6	A thinner more abrasive resistant string material that is "wrapped" around the string bundle to prevent wear and damage to bow strings at critical points.
8	The tom's yelp, slower and lower pitched than hen yelps.
13	The largest race of Canada geese, weighing 14 pounds or more. Many are non-migratory.
15	Setting up in area turkeys frequent and calling occasionally, hoping a bird will come within earshot.
17	A member of the deer family, such as mule deer, elk, moose, and caribou.
18	Area of the bow riser that is held when the bow is shot. Usually made of wood plastic, or rubber, and in one piece, or two side plates. Locates the bow precisely in the hand.
20	A bow designed so that, when strung, the bow curves back against its natural bend, giving it great power when an arrow is released.
22	A short loop of string added to the bowstring and used by release shooters. The arrow is nocked inside of the string loop, and the release clamps onto the loop, causing the pull to be straight back of the arrows center (instead of under), and also helpful in aiding to reduce "torque" induced by twisting of the release.
27	The growths of bone-like material protruding from the skull of a male member of the deer family.

ANSWER KEY

Across

- 3. flinch
- 5. slate call
- 6. scatter
- 7. henned up
- 9. scratch box
- 10. rut
- 11. score
- 12. rub
- 14. arrow spinner
- 16. kisser button
- 19. chronograph
- 21. anchor point
- 23. air scent
- 24. draw length
- 25. holed up
- 26. glassing
- 28. clicker
- 29. torque

Down

- 1. fletching
- 2. silhouette
- 4. fletcher
- 6. serving
- 8. gobblers yelp
- 13. giant Canadas
- 15. blind call
- 17. cervid
- 18. grip
- 20. recurve bow
- 22. string loop
- 27. antlers

Experience

Have a supervising adult hold a bow and identify all the parts you can remember. Then wax the string and safely store the bow. You could video this experience and upload the video for your 4-H portfolio.

Contact your local 4-H office for more information on shooting sports programs in your county.

Unit 5: Hunting



Laws and Regulations for Tennessee Hunting

Project Outcomes

- Explain where to find information on Tennessee's general laws and regulations for hunting

Knowing the Tennessee laws and regulations for hunting is essential in having a great and rewarding experience. The TWRA lists many useful links on their website including:

- Statewide regulations
- Quota hunts
- Where to hunt
- Buying a license
- Hunter education
- Records

All of these resources and more are available at: <https://www.tn.gov/twra/guide.html>

Experience

After exploring the website, answer the following questions.

What does a junior hunting license cost in Tennessee?

What is the daily bag limit for turkey hunting?

Describe the Hunters for the Hungry program.

Activity 13

Wildlife

Project Outcomes

- Given a picture, identify all of Tennessee's game animals by sight

There are more than 140 common mammals, birds, reptiles, amphibians, fish, butterflies, and insects that can be found in Tennessee. Some of those animals migrate south for the winter, and some can be found here throughout the year. Deer, bears, mountain lions, coyotes, foxes, skunks, raccoons, and even beavers and otters roam free in the woodlands of Tennessee. Depending on where you visit in the state, you may find larger groupings of game than in other parts.



You can view a large variety of wildlife at the following link:

<https://www.tn.gov/twra/wildlife.html>

Using the word bank below, identify the name of the wild animal and write it in the blank above the picture. Then check your answers on page 84.

WORD BANK

American bullfrog

Coyote

Raccoon

Opossum

Great Horned Owl

Black Bear

Wild Turkey

Beaver

Common Gartersnake

Mourning Dove

1. _____



2. _____



3. _____



4. _____



5. _____



6. _____



7. _____



8. _____



9. _____



10. _____



ANSWER KEY

- | | | | |
|------------|-----------------------|-----------------------|----------------|
| 1. Raccoon | 2. Coyote | 3. Black Bear | |
| 4. Beaver | 5. Mourning Dove | 6. Great Horned Owl | 7. Wild Turkey |
| 8. Opossum | 9. Common Gartersnake | 10. American bullfrog | |

Experience

Take a hike and see if you can spot any wildlife. Come back and log a report of what you saw.

Activity 14 Stalking and Camouflage for Hunting

Project Outcomes

- Describe and demonstrate stalking
- Discuss the importance of camouflage
- Understand the basics of hunter education



Maybe you are a hunter, want to do wildlife photography, or simply have a more quiet and humble presence in the woods. Whatever your reason, the goal is to get as close to the animal before they realize you're there.

Camouflage does not have to be expensive. The goal is just to break up your silhouette or outline of your body. It does not have to exactly match the area you are in. Camo, plaids or checks are all good because it breaks up your outline, and using earth tone colors is best. Your clothing should be loose fitting so that you can move easily but not baggy to catch on things and make noise. Dressing in layers is important to give you flexibility in controlling your warmth. Last, don't forget your feet. You should wear soft-soled shoes like tennis shoes or even moccasins so you can feel the ground and what is covering it like twigs, pinecones or other debris.

Now that you are dressed, let's talk about some pointers for stalking:

- Pay attention to wind speed & direction. You want to stay downwind of the animal, so it doesn't smell you.

- Use visual cover. You're more likely to be seen in open landscape, especially if you move too quickly. You want to think ahead about the overall landscape and plan your approach accordingly.
- Try to not rely so heavily on your eyes to see where you're going. You want your eyes to be free to watch the animal. Use your peripheral vision to watch the path ahead of you, while also being attuned to any shifts in the animal. Your feet can be like eyes.
- Crawling is even quieter than walking. Sometimes you need to be absolutely silent. If the ground is crunchy, or if you're very close to the animal, then crawling is usually the best bet.
- Pay attention to bird language. If you disturb the birds, then other animals will pick up on the alarms and give away your location.
- Allow your steps and movement to be dictated by what's happening with the animal. If the animal is being alert and looking around or listening... Stop and freeze. Wait until it goes back to feeding and starts making a bit of noise.
- Use the animal's own movement to your advantage. If you notice the animal is already coming in your direction, sometimes the best thing you can do is get really well hidden and position yourself in a great spot.

If you remember these tips and dress for success, your chances of getting close to your animal will be much easier

Experience

If you have camo or appropriate clothes, dress and go outside to practice stalking (whether it be with animals or decoys). Describe things you noticed like wind, noises, and reactions.

Also, you might try a fun game to play with family or friends called fire keeper. The fire keeper sits in the middle of a circle, blindfolded. The circle can be anywhere from 15 feet to 30 feet in diameter, depending on how much of a challenge you want to have. The firekeeper's job is to protect a fire, represented by a set of jingly keys, or some other object, placed on the ground directly in front or behind the fire keeper. Then the stalker(s) try to sneak in and steal the fire object without being detected. If the fire keeper hears a noise, they point towards the place where the sound came from. The game ends when the firekeeper points at the intruder or the intruder successfully steals the object. Change up the practice location and size of the playing field to adjust the difficulty. Soft grassy locations make for an easy stalking scenario or a leafy and twiggy location for a more difficult stalking scenario.

Hunter Education

The basic hunter education course provides firearms safety training and introduces students to their responsibilities in the fields of hunter ethics and wildlife management. The basic hunter education course will consist of topics including hunter ethics, hunter responsibility toward wildlife, the environment, landowners and the general public, archery and the history of modern-day bowhunting, tree stand safety, history of firearms, black powder, and muzzleloading firearms, knowledge of modern firearms and ammunition, proper gun handling and storage, marksmanship fundamentals, hunt preparation: specific laws and various equipment, principles of wildlife management and wildlife identification, survival, hypothermia, and first aid.

The course is offered free of charge to anyone interested regardless of age; however, you must be nine years of age or older in order to become a certified hunter education graduate. Parents are encouraged to go through the course with their children. Parents who participate and who pass the test will receive a hunter education course certification.

This course is offered in person and online. For more information visit:

<https://www.tn.gov/twra/hunting/hunter-education.html>

Congratulations!

You have completed the Beginner Outdoor Recreation/Shooting Sports Curriculum! By completing this project book, you have learned about outdoor recreation, fishing, hunting, firearms, archery, near you and around Tennessee. Continue to seek opportunities to apply what you have learned to your project work so far and learn new things along the way. Make sure to upload any figures to your digital 4-H portfolio.

You can find more information on the Tennessee 4-H Outdoor Recreation/Shooting Sports webpage, including the project outcomes and curriculum for the Intermediate level.

Resources:

<https://www.tn.gov/twra/fishing-regs.html>

<https://offgridsurvival.com/basicpartsofagun/>

<https://www.targettamers.com/guides/how-to-zero-iron-sights/>

<https://tacticalgear.com/experts/shotgun-basics-identifying-parts-and-functions>

<https://competitions.nra.org/media/8919/2023-bb-gun-rules.pdf>

<https://www.thelongbowshop.com/pages/a-beginners-guide-to-archery>

<https://www.amazon.com/Compound-15-45lbs-Beginner-Equipment-Adjustable/dp/B09TSZVK3Y?th=1>

<https://1source.basspro.com/news-tips/hunting-information/7830/hunting-terminology>

<https://www.tn.gov/twra/wildlife.html>

<https://www.alamy.com/the-art-of-camouflage-and-stalking-has-become-an-all-important-part-of-the-training-of-the-home-guard-units-from-many-parts-of-the-country-gave-demonstration-of-fieldcraft-at-a-south-eastern-army-school-on-july-5-1943-ap-photostaffworth-image524910040.html>

<https://www.princeton.edu/~oa/nature/naturobs.shtml>

<https://nature-mentor.com/how-to-stalk-animals/>



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