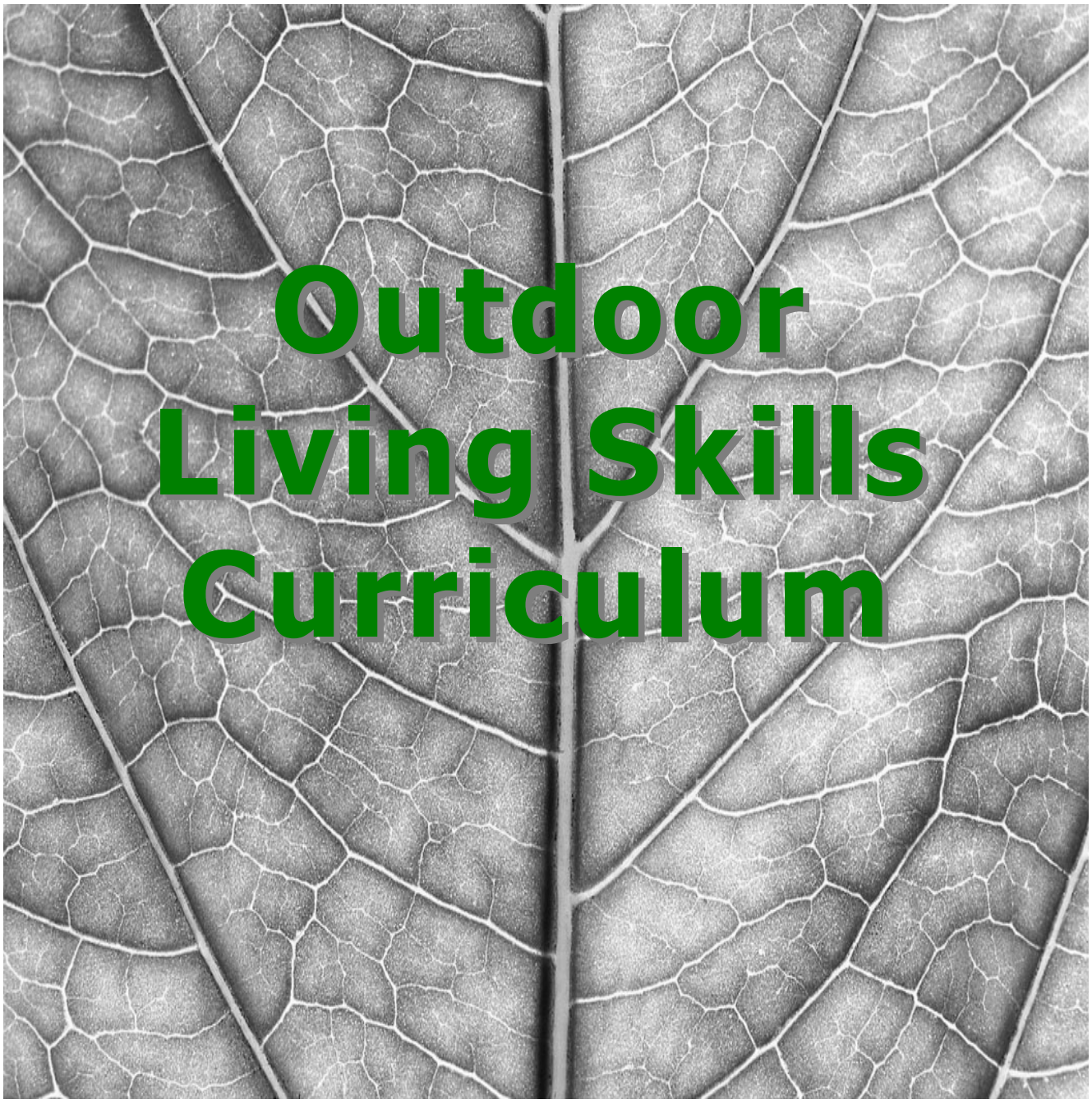

Outdoor Living Skills Curriculum

Agriculture and Agri-Food Canada

Agriculture et Agroalimentaire Canada

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Table of Contents

Special note: Alphabetical, age group and topic activity indexes are included at the end of the Outdoor Living Skills Curriculum

How To Use the 4-H Outdoor Skills Curriculum

The 4-H Outdoor Skills Curriculum consists of seven themes. Each theme is identified with a coloured box in the top right corner at the beginning of each activity. Every activity is designed to stand alone, without any other activity in this curriculum. The activities do not need to be implemented in any specific order, but most of the activities complement one another. You will find an alphabetical index of the activities at the end of the curriculum.

The Wonderful World of Wildlife

This section will teach 4-H members how to identify animals and their tracks, birds, and insects. It also explores the topic of fishing and fishing techniques.

All Things Green

This section focuses on teaching 4-H members about plants, trees, and shrubs. It also includes activities that focus on locating and preparing edible wilds.

Looking at the Sky and the Weather

In this section, members will learn about constellations, and different weather topics.

Eye on the Environment

The Eye on the Environment section teaches 4-H members to understand ecosystems and food chains. It also has activities that focus on environmental resources, and the impact our lifestyle has on the environment.

Outdoor Survival

This section of the curriculum has activities that teach 4-H members about navigation, shelter building, fire starting, water collection, and first aid skills.

Adventures in the Wilderness

In this section there are activities that focus on outdoor expeditions including hiking, canoeing, and low impact camping.

Winter Fun

The Winter Fun section includes activities in the following areas: cross-country skiing, snowshoeing, winter camping and winter games and activities.

The 4-H Outdoor Skills Curriculum was designed with three age groups in mind.

- **Junior**: 8 to 10 years of age
- **Intermediate**: 11 to 14 years of age
- **Senior**: 15 to 19 years of age

Each activity has been designed for one of these age groups, but occasionally activities are appropriate for more than one of the age categories. In the top right hand corner at the beginning of each activity, there are boxes that identify which age group the activity was designed for. You will find an age category index of the activities at the end of this curriculum.

Each activity in the 4-H Outdoor Skills Curriculum has learning outcomes identified at the beginning of the activity, and processing prompts at the end. To gain a better understanding of why these were added to every activity, we have included the following section about experiential learning.

Experiential Learning

Experiential learning is a model which, simply put, consists of action and reflection. Research shows that learning is often best achieved when it is fun, active, interesting and easy to understand. Participating in fun activities creates a sense of togetherness within a group and helps members relate to one another, as well as allowing the group to relax, to feel safe and to feel at ease. Through guided reflection and discussion, activities with meaning often help individuals understand concepts and skills more than they would if the same meaning was presented in a lecture format.

A leader can help 4-H members and groups learn, by leading activities with meaning. These activities can then be processed to help the group find the meaning. These lessons learned can then be applied to other areas of the members' lives – helping them to transfer the meaning from the activity to the real world.

The following Outdoor Living Skills Curriculum includes learning outcomes at the beginning of each activity. Members will discuss and explore the meaning behind the activities and transfer these insights, through the help of the 4-H leader, into their everyday lives whether it be in sports teams, school groups, community groups or families. The 4-H leader can facilitate this by using the processing prompts listed at the end of each activity.

What is Processing?

Processing is when individuals reflect, describe, analyze and communicate what they have just experienced in an activity.

When implementing the Outdoor Skills Curriculum, processing is most easily done with the group when standing or sitting in a circle, and when the entire group is attentive and focused on the discussion. Each activity has processing prompts. Here there will be a list of questions to ask the group or instructions on concepts to focus on in a group discussion. Some or all of the questions can be used

to process the activity. Feel free to add your own processing prompts to an activity if you feel that there is a specific topic that should be discussed. Processing can be fast or slow, it will depend on the group and the activity.

Throughout the Outdoor Living Skills Curriculum, the nature journal is mentioned in many of the activities as a tool for members to record their observations, feelings and experiences. The instructions for this activity are included here, and can be used with members of all ages as an introduction activity for the Outdoor Living Skills Curriculum.

Nature Journal

Topic: Journaling

Learning outcomes:

- To keep a personal record of encounters with plants, birds, bugs and wildlife.
- To reflect on experiences in the outdoors and various other activities within this curriculum.
- To create a relationship with nature.

Materials needed: One photo album (or scrap book) for each member with solid colour cover, card stock, paper or fabric.

Time: Unlimited.

Special note:

Instructions:

Here are a few ideas for journal entries;

1. Use the "hammering" technique to display images of plants and flowers in the journal.

    a. Set a smooth board on top of a stack of newspapers. Place a paper towel on top of the board.
    b. Put white construction paper on top of the paper towel. Place a flower or leaf on this, colourful side down. Tape down the edges and cover the rest with paper towel.
    c. Hold a hammer near the head and tap gently all over. Plants will change colour as you do this, so make sure you've hammered everywhere. Pigment will bleed through showing where you've hammered.
    d. Once you've hammered the entire plant, leave the plant taped on, then use a warm (not hot) iron to press the paper on the BACK to heat-set the colours.
    e. Turn over the paper and carefully peel off the tape – the plant material should come off too. Carefully scrape away any leftover plant from the paper.

2. Sketch pictures of creatures, trees, flowers or scenes you observe while in the outdoors.

3. Use photographs to record interesting things you see while in the outdoors.

4. Reflect on experiences while camping, hiking or any other outdoor activity.

Processing prompts for ongoing journal reflection:

- What are the most common types of "journal entries" found in your journal? Why have you chosen to use that method to journal? How have those entries helped you understand nature?
- When you know someone personally, you tend to care for them more. Do you think you will feel the same way for things in nature? Does this journal help you to connect with nature? How? Why is this important?

Processing activity:

- In a circle, give each person the chance to share something from their journal. Sharing should be optional and can be simply talking about an entry; showing the group a picture or sketch; describing a story; or explaining why the journal is important to them.

The Wonderful World of Wildlife: An Introduction

Recommended Resources

National Audubon Society, First Field Guide Mammals
National Audubon Society, First Field Guide Birds
National Audubon Society, First Field Guide Insects
Murie & Peterson, A Field Guide to Animal Tracks, Peterson Field Guides
Rezendes, Tracking and the Art of Seeing: How to Read Animal Tracks and Signs
Andahl, The Barefoot Fisherman: A Fishing Book for Kids
Schmidt, Let's Go Fishing: A Book for Beginners

Watching Wildlife

Canada is rich in wildlife, but there are no guarantees when watching wildlife that you will see any. Animals tend to avoid people. Therefore, it is important to have patience and determination when looking for wildlife. It is important to outline this to members so that they are not disappointed if they do not see any wildlife.

Here are a few tips to talk to your group about when you are out looking for wildlife:

The Right Place

It is important to know an animal's habitat. For example, a moose loves well-forested areas with lots of marshy areas. Pelicans look for lakes and islands. You can use some of the recommended field guides to identify animal habitats so you're looking for animals in the right place, and in the right season. Ensure that your information is regionally appropriate.

The Right Time

Different species of wildlife are active at different times – some in the daytime, some at nighttime. Typically, dawn and dusk are good times to view wildlife. Some field guides will recommend the ideal time to view specific types of wildlife.

For birds, different times of the year will lend to increased numbers of sightings. For example, spring is a great time for a beginner bird watcher because birds are making more frequent birdcalls, and are displaying their courtship behaviours, and breeding plumages.

The Right Way

For optimum viewing of wildlife, move slowly and quietly and avoid sudden movements. Make sure you are looking both up and down, and ahead of you. Be aware of movements in grass, bushes and trees. If members of your group are interested, you could bring binoculars along with you so that they can get a closer look!

It is important to discuss the right way to watch wildlife with your 4-H members. The quieter and more attentive they are, the more wildlife they are likely to see.

Respecting Wildlife and Their Habitats

Here are a few tips to share with members about respecting wildlife and their habitats:

- Never feed or touch a wild animal, even if it appears to be hurt or abandoned. If you think that an animal is injured or sick, contact your local animal shelter or conservation office for advice.

- Leave nests, nesting birds, mammals and young species alone – a young animal's mother may see your presence as a threat to her young and act to protect her family.

- Leave your own pets at home – they may threaten or aggravate wildlife.

- Learn how to behave around large mammals such as bears, elk, and moose. If you are not sure what the proper behaviours are, contact the closest conservation office or provincial or national park. Interpreters are always willing to share this type of information.

Wildlife Treasure Hunt

Adapted from Henley, Rediscovery

Topic: Animals and tracking

Learning outcomes:

- To teach members about local wildlife and their habitats.
- To explore community based resources and practice valuable research skills that will be useful for other 4-H projects.

Materials needed: Photographs of local animals, index cards, glue or tape, coloured pens or markers, a topographical map of your local area, coloured pins, laminating machine (if available), and nature journals (optional).

Time: Unlimited

Special note: You will need animal cards for this activity. These can be created ahead of time by the leader, or created by the group as part of the activity. If time allows, we suggest including the members in the creation of the cards as this makes a great library, internet, or museum research project.

Instructions:

1. To create the cards: Attach photographs of local wildlife onto the index cards. On the backside of the card, record basic facts and interesting information about the species. If possible, laminate the cards for durability. Contact a local interpreter in your area for a list of local wildlife and information resources (they might even have photographs to give you).
2. With a set of cards completed, have members go through the cards and review the information. Explain to the group that for the next several weeks, at the beginning or end of their 4-H meetings they will discuss what local wildlife each member has observed and identified. Members can record this information in their nature journals.
3. During these discussions, have members mark the map with pins to identify the exact location of each sighting.
4. During these discussions, provide opportunities for story telling and information sharing. Encourage discussions using the following processing prompts.

Processing prompts:

- Did this activity increase your awareness of wildlife in your local environment? What did you learn?
- Were there any areas around your neighbourhood where you were surprised by the amount of animals that you noticed? Do you have any good stories to share?
- Why is it important for us to notice wildlife on a daily basis?
- Will this exercise change the way you interact with wildlife in the future? How?

Wonderful World Of Wildlife

Junior

Intermediate

Senior

Plaster-Cast Tracks

Adapted from Drake & Love, The Kids Cottage Book

Topic: Animals and tracking

Learning outcomes:

- To find and identify animal tracks.
- To be creative.

Materials needed: Heavy cardboard (5 cm X 20 cm), a paper clip, water, a margarine tub, wall plaster, and a stick (enough for each member), nature journals (optional), a field guide to animal tracks.

Time: 1 hour

Instructions:

1. Find a clear animal or bird track in the soil or sand. Identify the track with a field guide.
2. To create a mold for the plaster, form the cardboard into a ring and secure it with a paper clip. Place the cardboard around the track and push it gently into the soil or sand.
3. Pour enough water into the margarine tub so that there will be enough to fill the cardboard mold halfway. Add the plaster a little at a time, stirring with a stick until smooth. The mixture should be as thick as pancake batter. It should pour but not be too runny.
4. Pour the plaster into the cardboard mold.
5. Let it set for several hours until it's very hard.
6. Remove the plaster cast from the ground.
7. Remove the cardboard mold from the plaster.
8. Highlight the tracks natural shape with paint or ink and decorate with glitter or other materials.

Safety considerations: N/A

Processing activities:

- Create a "gallery" of tracks by displaying the plaster casts for all to see. Have the group go on a gallery tour where each member introduces their mold and talks about the track and the animal that it came from.
- Have members come up with a story about the animal that left the track. What it was doing at the time, where it was going and other fun and creative details. Share the story verbally, draw pictures, or write in their nature journals.

Finding Prey

Adapted from Cavert, Games for Group Book 1

Topic: Animals

Learning outcome:

- To explore the concept of predator vs. prey.

Materials needed: Two blindfolds, and two sound devices.

Time: 30 minutes

Instructions:

1. Form a large size circle in an open area with your members.
2. Explain to the group that a one member will be acting as the predator, and the other will be acting as the prey.
3. Choose two members who are willing to be blindfolded. From the two, pick a predator and a prey. Put the blindfolds on these two members.
4. The leader moves each person into the middle of the circle, then carefully hands each a sound device without giving away the other person's position.
5. The goal of the activity is for the predator to find and tag the other person in the circle. The predator is allowed three separate rings with the sound device. The prey must answer with a ring each time. The prey can ring as many times as he or she wishes. The predator must answer each time.
6. The rest of the group acts as silent bumpers to prevent the two players from leaving the circle. Silence is very important in this game.
7. When the predator finally tags the prey (or their three rings are used up) have the players switch rolls to give the prey a chance to be the predator. The round is over after a tag or three rings.
8. Choose two different players. Play enough times to give everyone a chance to play both roles.

Variation: Have multiple preys play with one predator. Have the prey use a different sounding device than the predator. You can also give out a different and unique sounding device to each member for an interesting effect (bells, squeaky toys, rattles, spoons, etc…).

Safety considerations: Make sure 4-H members feel comfortable wearing blindfolds prior to putting them on. Teach members how to move with hands out, in a safe "guarding position". Play on even ground with no obstructions. Do not allow running. The leader should be in the circle to provide spotting where necessary.

Processing prompts:

- What were you trying to do (goal) when playing the predator? What about when playing the prey?
- Do animals do this in nature? Which ones? Why do these roles exist?
- Do you think there are more prey or predators? Why?
- Why are these roles important in nature?
- How did you feel when you were blindfolded? Did you feel safe?

Looking for Animal Tracks

Adapted from natureskills.com

Topic: Animals and tracking

Learning outcome:

- To find and identify animal tracks.

Materials needed: A field guide to animal tracks, and food as bait.

Optional materials: Flour, cookie sheet, board, or flat object.

Time: 10 minutes, 1 hour the following day.

Instructions:

1. Have your group find a piece of ground that has a smooth patch of light and dry, dirt or sand, that you can revisit the following day. If you have a large group, choose several areas for this activity. If you can't find a suitable place, put some flour on a large cookie sheet or other flat surface. Whatever surface you choose needs to be smooth and soft on top.
2. Place a little bit of food in the middle of your spot (or spots). An old piece of bread is good enough. Do this just before nighttime. If all goes well, an animal will be attracted to the food and will leave behind their tracks.
3. Return the following day and look for signs of visitors. If you find any tracks around the food, use your animal tracks field guide to identify them.

Variations: For a more advanced experience, go out for a day hike with the intention of finding and identifying wild animal tracks. Combine this activity with the Plaster-Cast Tracks activity.

Safety considerations: Do not put the food anywhere near your campsite! It may attract animals that you don't want around.

Processing prompts:

- Did you see signs of any animals around the food? Don't forget to look for signs of insects or birds.
- Is it difficult to identify the signs or tracks you found?
- What other signs of animal activity can you find?

Judge Nature

Adapted from www.ultimatecampresource.com

Topic: Animals

Learning outcomes:

- To gain an understanding of the hardships and challenges animals experience in their quest for survival.
- To create a sense of empathy and respect for the resiliency and natural design of wild animals.

Materials needed: Name tags, hula-hoop, markers, and "action calls".

Time: 30 minutes

Special note: Compile a list of "action calls" similar to the sample below. Feel free to adapt the list to suit your group size, target age, and playing environment. You may need to add actions to the list for a longer game.

Instructions:

1. Every player chooses the name of an animal they would like to represent, and writes it on their name tag. You may also want to review the habits of the animals in the game so that the members have a good sense of how to act upon hearing the "action calls".
2. One player is chosen to become Judge Nature and to call out the "action calls".
3. Animals follow the "action calls" given by Judge Nature.

    - "Survival of the fittest" -Player runs around a designated tree and touches Judge Nature. The first four players live, the rest are "out".
    - "Drought" -player hops to an area designated as the water hole and back (i.e. a different tree, a hula hoop, a bag on the ground) and touch Judge Nature. The first three players to make it back, and not run, live. The rest are "out".
    - "Hunter coming" "Attention all game animals" – Those players that chose to represent a "game animal" have fifteen seconds to run and hide from the sight of Judge Nature. If they are seen, they are "out". Judge Nature must remain stationary while visually searching for the animals.
    - "Illegal hunter" – All animals must run and hide because the hunter will shoot any animal they see. After fifteen seconds, any animals that can be seen by Judge Nature are "out". Judge Nature must remain stationary while visually searching for the animals.
    - "Famine" – Players must find another animal, that in nature, they would naturally eat. If they cannot find one, they are "out".
    - "The hunt" – This is the reverse of "Famine". If a player is a natural food source for any other animal in the group, they are "out".
    - "Winter" – All animals that hibernate live, while the others are "out".

    - Other action calls that can be used are “Fire”, “Storm”, “Injury” and “Disease”. Have fun and be creative with your calls and the resulting actions.

4. After each “action call”, the players who are “out” must go to a designated area called "soil". There, they will need to perform a “life action” to earn another life, and rejoin the game. “Life action” examples might include: hop on one leg for thirty seconds, do five somersaults, or do 10 jumping jacks. The player in the role of Judge Nature can also lead this area. In this case, you may want to create a list of “life actions” for them to choose from.
5. Once the players have completed the “life action”, Judge Nature continues the game by calling out another “action call” from the list.

Game tips and suggestions:

- To play this game multiple times with the same group, have the players make up a new series of “action calls”.
- Every so often, have the players choose new animal roles. Have them make the change on their nametags. Using the same list of “action calls” will allow them to learn how different animals are affected by nature’s challenges.

Safety considerations: Play on even ground with as few obstructions as possible.

Processing prompts:

- What animals did you like playing the best? Why?
- Did you think all of the “action calls” were fair? Do you think nature is fair?
- What types of animals were more successful in this activity? Why?

Processing activity:

- Pick an animal to focus on. Lead a discussion on how that particular animal survives nature’s challenges. Use challenges listed in the “action calls”.

Stalking

Adapted from www.ultimatecampresource.com

Topic: Animals

Learning outcomes:

- To experience the excitement of animal stalking.
- To tune in to the sense of hearing.

Materials needed: One blindfold for every two members, and one stone for every two members.

Time: 30 minutes

Instructions:

1. Half the group is given blindfolds. These players are placed in a random formation within the boundaries of the playing area. A stone is placed between their feet but not touching them.
2. The other half of the group (the ones that can see!) begin to stalk the blindfolded players in an effort to obtain the stone from between their feet.
3. In an attempt to pinpoint a stalker, the blindfolded players may point to a sound. If a stalker is there, the two players switch roles and start over. If random and excessive pointing becomes an issue, try limiting the number of times the blindfolded player may point unsuccessfully. When they reach that number, they lose their stone to the nearest stalker and must wait until the end of that round of play (have them take their blindfold off and sit quietly).
4. Stalkers try to collect as many stones as possible without being caught.
5. Once all of the stones have been collected, or a time limit has been reached, a new round of play can begin.

Variation: This activity can be played when it is dark outside. There is a terrific evening program variation to this game. The players protecting the stone between their feet are given flashlights. When they think they know the location of a stalker, instead of pointing to him or her, they flash the light in the direction from where they hear the noise. Each player is given three separate 'flashes' of light before losing his stone to the nearest stalker.

Safety considerations: Make sure 4-H members feel comfortable wearing blindfolds prior to putting them on. Teach members how to move with hands out, in a safe "guarding position". Play on even ground with no obstructions. Do not allow running.

Processing prompts:

- What was it like to be the stalker? What was it like to guard the stone?
- Which role did you enjoy playing the most? Why?
- What animals play these roles in nature?
- What kinds of things do animals do to be successful stalkers? Discuss examples.
- How do animals protect themselves from stalkers? Discuss examples.
- How did you feel when you were blindfolded? Did you feel safe?

Animal Signs

Adapted from Caduto and Bruchac, Keepers of the Animals

Topic: Animals and tracking

Learning outcome:

- To discuss animals and their impact on humans.

Materials needed: Chalk and chalkboard OR markers and paper, maps, atlases, magazines, encyclopedias, internet (optional), scissors, index cards, tape, pencils, crayons, animal photos (if available), and nature journals (optional).

Time: 2 hours

Instructions:

1. Have members create a list of the many ways that people use animal images as signs and symbols.
2. Next, lead a discussion around the qualities that people typically assign to certain animals. Come up with five to ten examples.
3. Using available resources (maps, atlases, magazines, field guides, encyclopedias, internet), have members' research examples of how cultures, nations, sports teams, advertisers, and individuals use animals and animal images. For example, someone could conduct a survey of local advertising that uses animals into their imagery and/or written message. Ask the members to be original and creative and look for an example they think might not be well known.
4. Now, have each member make up to five "animal sign" cards. Choose five animal images they have discovered as a result of their research. On one side of the card, draw or tape a picture of the animal. The flip side will list the animal's name, where and how its symbol is being used, and the member's own thoughts about what qualities the animal represents for the person or people who are using it – the attributes that those people seem to value. This can be done in their nature journals.

Safety considerations: N/A

Processing prompts:

- Why do you think this person or group of people has chosen this particular animal as a symbol?
- What needs does this animal fulfill?
- What animal might you have used instead to better meet the need?

Processing activity:

- Have the members present their five "animal sign" cards to the group.

A Search for Tracks and Habitats

Adapted from Project Wild, Elementary Activity Guide

Topic: Animals and tracking

Learning outcomes:

- To introduce the concept of habitat.
- To actively explore a local habitat and find signs of animals life.
- To discuss what people can do to protect the elements of a healthy habitat.

Materials needed: A field guide to animals and their tracks, a whistle, and nature journals (optional).

Time: 2 hours

Instructions:

1. Introduce the concept of habitat to the group. Explain that a habitat is another word for an animal's home. An animal's habitat includes food, water, shelter, and space.
2. The members' task in this activity is to search for animal tracks. Once they have found a set of tracks, they will try to identify them with a field guide. Once they have identified the track they will follow them. Hopefully, the tracks will lead them to an animal's habitat.
3. Before sending your group on their way, make sure they know the boundaries of the activity. They should be in pairs or small groups, and they should return when they hear a whistle blast.
4. Ask members to take note of what they hear, and what they observe.

5. When the members return they can share their experiences. They could also write about their experience in their nature journal.

Variation: You can combine this activity with Plaster-Cast Tracks activity.

Safety considerations: Leaders should be familiar with the area and members should never travel alone. Groups should carry whistles. If emergencies arise, they can blast the whistle to get the leader's attention.

Processing prompts:

- Has your understanding of a habitat changed because of this activity?
- What are some of the animals that live in this area?
- Did you find any animal signs? Did you find any tracks?
- Were you able to find the things that animals need for a healthy habitat? What was missing?
- What kinds of things threaten a healthy habitat? How can we work to protect our local natural habitats?

Processing activity:

- Have members brainstorm a list of easy actions they can commit to each day that will help protect local natural habitats (recycle, bike instead of drive, carpool, don't litter, bring their own bags to the grocery store, etc…).

Make a Birdcall

Topic: Birds

Learning outcomes:

- To attract birds by sound.
- To connect with nature.

Materials needed: Two popsicle sticks per member, long thick blades of grass, elastic bands, nature journals (optional), and a field guide to birds.

Time: 30 minutes

Instructions:

1. Ask your group members to sandwich the grass between the popsicle sticks.
2. Then, secure one end of the popsicle sticks with an elastic band.
3. Members should blow into the popsicle sticks as if they were playing a harmonica.
4. To attract wildlife, ask the group to sit quietly and blow the same rhythm repeatedly.
5. Chickadees and Blue Jays may be the first to arrive. When a bird is attracted to the group, identify the type of bird with a field guide.
6. Bird species and sightings can be recorded in their nature journals.

Variation: Older 4-H members may want to sit somewhere on their own, and enjoy the activity individually.

Safety considerations: N/A

Processing prompts:

- Did any birds arrive? What kinds of birds did you see?
- Did you hear any other calls?
- Did your call sound like the calls being made by the rest of your group?
- Why do birds have calls? Are they all the same?
- What birdcalls do you know? Can we hear them?

Listening for Birdcalls

Adapted from Cornell, Sharing Nature With Children

Topic: Birds

Learning outcomes:

- To have fun, slow down, and appreciate nature.
- To become aware of the birds and the sounds around us.

Materials needed: None.

Time: 30 minutes

Instructions:

1. In a natural environment (forest, park, meadow) have the group lie down on their backs.
2. Tell the group to relax, and listen to the environment.
3. Remind them to listen for different birdcalls.
4. Use the processing prompts to guide a discussion with your group after they have listened for birdcalls for 15 to 20 minutes.

Safety considerations: N/A

Processing prompts:

- How many kinds of bird songs did you hear? Did you recognize any of them?
- Did you see the birds? What did they look like?
- What other sounds or things did you notice when lying on your back?
- What kinds of things did you think about while lying on your back?
- Is this something you might do again on your own or with friends? Why?

Homemade Bird Feeders

Adapted from Carlson, EcoArt!: Earth-Friendly Art & Craft Experiences

Topic: Birds

Learning outcomes:

- To learn how to make a homemade bird feeder.
- To attract birds to a particular area for viewing.
- To learn about the local bird species.
- To feel proud about creating a welcoming environment for birds.

Materials needed: Large pine cones (enough for each member), peanut butter, string, butter knives, shallow pan, plastic bags, and nature journals (optional).

Time: 40 minutes

Instructions:

1. Use the knives to spread peanut butter all over the pinecones.
2. Place a layer of birdseed in the shallow pan.
3. Roll the pinecones in the birdseed until all of the peanut butter is covered.
4. Tie the string around one end of the pinecones and hang them in an area where you would like to attract birds. (If members are taking the bird feeder home with them, put the pinecones in plastic bags to protect the feeders)

Safety considerations: Ask the group about peanut allergies before planning this activity.

Processing prompts (after the feeder has been up for a few days):

- Have there been any birds at your feeder? What kinds?
- Have you seen any other animals eating from the feeder?
- Does it feel good to have a feeder up for the birds? Why?
- Why is it important to do kind things for animals?

Processing activity:

- Have members choose a time of day and document their bird sightings (numbers, type of birds, particular actions, etc…). Repeat over several days. Bring that information to the next 4-H meeting and compare notes with the group. They can use their nature journals to record this information.
- Suggest taking pictures of the birds on the feeder. Use the pictures to help identify the birds using a field guide.

Bird Observation

Adapted from outdoor-nature-child.com

Topic: Birds

Learning outcome:

- To learn to identify different species of birds.

Materials needed: A field guide to birds, and nature journals (optional).

Time: 15 minutes, for five days.

Instructions:

1. Find a quiet spot with your group where there are birds.
2. Take your group to this place for 15 minutes every day, for five days in a row. Think about what time you will do this. When are most birds active? The middle of the day is not a good time because most birds are resting. Early morning, just after the sun comes up is good. That is when birds are out feeding. Early evening, just before the sun sets is also a good time.
3. Your group's first goal is to see as many different kinds of birds as they can. If you have a field guide to birds, see how many birds your group can find in the guide. Write down the name of each bird that your group finds. See if they can get as many as five.
4. Ask the group to draw a picture of one or two of the birds they saw. They can do this activity in their nature journals.

Safety considerations: N/A

Processing prompts:

- Did you enjoy watching the birds each day? What did you like the most about it?
- What were your favourite birds to look at?
- Did you see a bird you had not seen before? Why do you think you saw it now and not before?
- Ask each group member: What was one thing that each of you learned about the local birds?

Wonderful World Of Wildlife

Intermediate

Senior

Nectar Feeder

Topic: Birds

Learning outcomes:

- To build a bird feeder that will attract hummingbirds.
- To learn about hummingbirds.

Materials needed: Red ribbon, a clear, long, thin bottle without a lid, sugar, water, red food colouring, twist tie (enough for each member), and nature journals (optional).

Time: 30 minutes, unlimited observation time.

Instructions:

1. Have members tie the red ribbon around the neck of their bottle. Hummingbirds will be attracted to the colour red.
2. Add ¼ cup of sugar to 1 cup of hot tap water. Stir until the sugar is dissolved.
3. Pour the sugar and water into the bottle.
4. Add red food colouring.
5. Using the twist tie, wire the bottle to the top of a strong shrub or plant. Make sure the feeder is placed in a sunny location.

Safety considerations: N/A

Processing prompts: (after the feeder has been up for a few days)

- Have there been any hummingbirds at your feeder?
- Does it feel good to have a feeder up for the birds? Why?
- Why is it important to do kind things for animals?

Processing activity:

- Have members choose a time of day and document their hummingbird sightings (numbers, particular actions, etc…). Repeat that over several days. Bring that information to the next meeting and compare notes with the group. They can record this information in their nature journal.
- Suggest taking pictures of the hummingbirds on the feeder. Pictures can be added to their nature journals.

Insects: An Introduction

Caution!

When investigating insects in the outdoors, it is important to make your group aware of insects that can be harmful. Leaders should also be aware of any members who have specific allergies to insect bites. Here is a list of some insects that should be discussed with your group, and a few tips to reduce the harm of these insects.

Mosquitoes

To avoid mosquito bites, wear long pants and long sleeved shirts. If they are really bad, gloves and head coverings can also be worn. A windy area will have fewer mosquitoes.

Black Flies

Black flies like open spaces and they disappear at night. To avoid black fly bites, wear long pants and long sleeved shirts. If they are really bad, gloves and head coverings can also be worn.

Ticks

Ticks are prevalent in grassy and forested areas. To avoid them, wear light coloured clothing and tuck your pants into your socks. When you return indoors, check your entire body. If one is attached to your skin – grasp the tick as close to the skin as possible and pull straight out with gentle, even pressure. Clean the area once the tick is removed. Leaders should monitor for signs of infection.

Bees and Wasps

Both bees and wasps will sting if they feel threatened. If a group member is close to a bee or wasp, tell them to stay as still as possible, and soon the bee or wasp will leave. If a group member is stung, they should wash the bite with soap and water and then ice the area. Leaders should look for signs of an allergic reaction, and signs of infection.

Insect Art

Topic: Insects

Learning outcomes:

- To explore the world of insects.
- To feel a connection to, and appreciation of insects through observations and understanding.

Materials Needed: Magnifying glasses, card stock, pencils, modeling clay, and a field guide of insects (optional).

Time: 1 hour

Instructions:

1. Have your group search an area for a variety of insects.
2. Ask the group to look at various insects through a magnifying glass.
3. Allow your group to explore for about 15 minutes.
4. Tell your group to then sketch a picture of a scene from the magnifying glass with a pencil on a piece of card stock.
5. Then, let your group embellish their drawing by pressing modeling clay onto their sketches forming a 3-D image.

Safety considerations: Make sure your group members don't wander away by themselves.

Processing prompts:

- What kinds of insects did you see? Which were your favourites? Why?
- What were the coolest parts of the insects? Weirdest parts?

Processing activity:

- As the clay modeling is taking place, have the members make up stories about the insects. Name them, talk about where they live, what they eat, what they do all day. Take a factual approach with the help of an insect field guide or go the creative route and have the members make up stories using their imaginations.

Sweep Netting for Meadow Insects

Adapted from Drake & Love, The Kids Cottage Book

Topic: Insects

Learning outcomes:

- To explore and discover the world of meadow insects.
- To appreciate the diversity of life in a common and local environment.
- To teach respectful animal identification.

Materials needed: A shoe box for each member, a bug net for each member, meadow, and a field guide of insects.

Time: 45 minutes

Instructions:

1. Find a meadow in your local area. Try and go to the meadow when it's sunny outside.
2. Ask the members to leave their shoebox on the ground.
3. Then, they will hold the net at plant-top level and brush quickly up and down and around the field. Circle back to the shoebox.
4. Ask them to carefully shake what they've caught into the box by turning the net inside out. Demonstrate steps three and four to the group before they begin the activity.
5. Attempt to identify the insects with a field guide – leaders could lead this process using one member's catch to demonstrate to the group.
6. Once your group is finished looking at the insects, release them by turning the box on its side.

Variation: If you're struggling to find a meadow, you could do a similar activity in a stream or pond. Just replace the shoebox with a pail.

Safety considerations: Make sure your group stays together in the meadow. It would be a good idea to have a buddy system.

Processing prompts:

- Did you find any insects that you have not seen before? Do you think they have always been there? Why is it important for us to know they are here?
- When we were collecting the insects, what are some things that we did that kept them safe? Why is it important to treat all animals well?
- Why do you think it's important for us to learn about insects?
- What can we do to protect them?

Raise a Butterfly

Adapted from Drake & Love, The Kids Cottage Book

Topic: Insects

Learning outcomes:

- To understand the change process from caterpillar to butterfly.
- To witness an amazing natural phenomenon.
- To practice caring for another living being.
- To feel a sense of responsibility.

Materials needed: A large glass jar, plants that are appropriate for the type of caterpillar you've collected, waxed paper, an elastic band, a fork, a field guide that shows a variety of caterpillars.

Time: 30 minutes, and unlimited observation time.

Instructions:

1. Help your group members find a caterpillar or two. Identify the type of caterpillar you've collected in a field guide. Here is a description of two types of caterpillars:

    - A Monarch butterfly caterpillar has narrow black, yellow and white stripes. This type of caterpillar eats Milkweed leaves.

- A Painted Lady butterfly caterpillar is greenish yellow. It has seven rows of spring yellow tubercles, yellow side bands, scattered black spots, and a hairy black head. This type of caterpillar eats Thistle, Burdock and Sunflower leaves.

2. Once your group has found one, or a few, place them in a large glass jar with the plant it was perching on. Each caterpillar should have its own jar.
3. Put additional leaves in with the caterpillar (make sure to find out what type of plant the caterpillar eats, this will be identified in a field guide).
4. Cover the top of the jar with waxed paper and secure it with an elastic band.
5. Punch small holes in the waxed paper with the fork.
6. Place the glass jar outside where it is dry and away from the direct sunlight.
7. After a few days, the caterpillar will stop moving and will hang still. The caterpillar will then spin its green case (chrysalis).
8. Once this is done, remove the waxed paper and pull the chrysalis out of the jar and into the open air.
9. Soon the chrysalis will lose its green colour and will turn dull and dark.
10. The chrysalis will eventually become clear with colour showing through.
11. Soon a butterfly will crack through the chrysalis!

Safety considerations: N/A

Processing prompts (to be asked after the butterfly has taken flight):

- How did it feel to take care of the caterpillar when it was in its chrysalis? What was it like to be part of that process?
- Are there other animals that you care for? Why is that important to you?

Micro-Hike

Adapted from Cornell, Sharing Nature With Children; Henley, Rediscovery

Topic: Insects

Learning outcomes:

- To explore a microenvironment.
- To appreciate even the smallest things in nature.
- To experience a new perspective.
- To be creative.

Materials needed: A one-metre string for each member.

Time: 45 minutes

Instructions:

1. Ask the group to span their strings over the most interesting ground they can find.
2. Tell the group that they must keep their eyes no higher than one foot above the ground.
3. As they begin to discover their microenvironment you can ask them questions to stimulate their imaginations.

    - What kind of world are you traveling through right now?
    - Who are your nearest neighbours?
    - Are they friendly?
    - Do they work hard?

Variation: You could ask the group to do a sketch of their microenvironment. Or, give each member seven toothpick flags. Once they have chosen a microenvironment ask them to identify the "seven wonders" in their microenvironment by marking them with the toothpick flags. They can present their "seven wonders" to the rest of the group.

Safety considerations: N/A

Processing prompts:

- What was it like to be so close the ground?
- Have you ever looked that closely at the earth before?
- What did you observe?
- How does this change the way you look at the ground you walk on each day?

Spying on an Anthill

Adapted from Drake & Love, The Kids Cottage Book

Topic: Insects

Learning outcomes:

- To observe an anthill.
- To discover the world from an ant's perspective.

Materials needed: One for each of the members: Clear plastic 2L pop bottle, scissors, a rectangular shaped rock smaller than the bottle, plastic wrap, tape, tray, trowel, plastic bag, pail, piece of paper, small piece of wet sponge, food crumbs, cotton ball, small piece of fine fabric, elastic band, and an old towel.

Time: 1 hour, unlimited observation time.

Instructions:

1. Cut the bottom off of the pop bottle.
2. Turn the bottle topside down and put the rock inside the bottle. The rock should fill the centre of the bottle and force the ants to construct their tunnels against the walls of the bottle.
3. Stretch the plastic wrap over the bottom opening and tape it to make a seal so that the ants cannot escape.
4. Put the tray on the bottle; turn it over so the bottle is standing on the tray.
5. Find an anthill. Using the trowel, dig into the anthill. Put all your diggings into the plastic bag. Try to get the following: ants carrying cocoons (cocoons look like a piece of rice), and a queen ant (larger than other ants). Once you have at least 20 ants, tie the bag shut. Put some of the dirt from the hill into the pail.
6. Make a funnel with the piece of paper and pour the dirt into the bottle.
7. Next, put the wet sponge in the top of the bottle. Sprinkle some food crumbs on top of this.
8. Then, pour in the ants and quickly close the bottle with the cotton ball.
9. Cover the top of the bottle with the piece of fabric – hold it in place with an elastic band.
10. Drape the whole bottle with the towel to mimic darkness for the ants.
11. Everyday, add a few drops of water and some food crumbs to the bottle. Watch to see if the ants have started construction.
12. Once the group has finished with the ants, make sure to return them to their natural environment.

Variation: Your group can collect worms instead of ants. Worms need water and plant leaves for food.

Safety considerations: N/A

Processing prompts:

- What observations did you make while watching the ants?
- Do the ants help each other? How?
- Are humans like ants in any way? How?

Night Prowl

Adapted from Drake & Love, The Kids Cottage Book

Topic: Insects

Learning outcomes:

- To identify insects that are active at night.
- To increase familiarity of the natural world at night.

Materials needed: Red bandanna or piece of red fabric, and flashlights.

Time: 1 hour

Special note: Ask members to wear dark coloured clothing for this activity.

Instructions:

1. Tie the bandanna or fabric over the flashlight so that when they're turned on, they glow red.
2. Go on a night hike – refer to the Night Hike activity.
3. Turn on your flashlight. Stand still. Walk ahead slowly.
4. When members of the group hear sounds, try to track them with the light from the flashlight.
5. You may see one or some of the following:

    - Bats – black, zigzagging shadows in the air
    - Fireflies – flashes of light
    - Beetle grubs – tiny glowing dots of light
    - Wolf spider eyes – tiny, crawling specks of white
    - Raccoon – bright yellow eyes
    - Bullfrog – shining green eyes
    - Coyote or wolf – bright white eyes
    - Cotton-tail rabbit – flash of white tails
    - White-tailed deer – bounding away
    - Skunk – white streaks waddling
    - Owl – silent shadow gliding from tree to tree

Safety considerations: Leaders must have a good understanding of the area and night travel.

Processing prompts:

- What kinds of insects did you see? Did you see any other types of animals?
- What was it like to be out in nature at night? Other than darkness, what were some of the main differences you noticed between the environment at night and during the day?

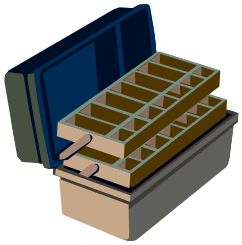
Fishing: An Introduction

The sport of fishing is appropriate for all ages. This section will give you some important tips for when you decide to take your group on a fishing adventure!

Safety

The most important item in any tackle box is a first aid kit. You might consider debarbing your members' fishhooks. All you have to do is bend the barb back against the hook's shaft with needle-nosed pliers.

Tackle Box



A first tackle box should be small, simple and virtually empty. All a beginner needs are a few pre-tied hooks, a couple of bobbers, some swivels, a few sinkers, small scissors for cutting line, and a tray that slides up when the box is opened. Local sports stores sell all of these items.

Fishing Tips

A first-time fisherperson will generally do one of three things when the bobber dives or there is a sharp tug on the line: (1) haul back on the pole with a lot of force, (2) crank the reel, (3) freeze. So, teach your group the following tips:

Keep the line taut

If there is a lot of slack in your line, you won't be able to respond properly when you get a bite. (And it will be harder to distinguish between a bite, a nibble and a nudge.)

Set the hook

Once the fish takes the bait in its mouth, give the line a quick, firm tug to set the hook in the fish's lip. If you pull too hard, you'll pull the hook right out of its mouth. Wait too long, and the fish will decide the hook tastes unwormlike and will spit it out.

Play the fish

Even if the fish weighs just a few ounces and you have 12-pound test line, don't force it out of the water. "Playing" a hooked fish—letting it struggle to get free—is a big part of the fun. It is also important for tiring out the fish so it can be landed. A fish that is still fighting when brought out of the water is more likely to be hurt when handled than a fish that has been tired out while you played it.

Catch or Release?

You should never kill a fish that you do not intend to eat.

If you and your group decide to release your catch, make sure it's done the right way. Always be sure your hands are wet before handling a live fish. The thin protective coating on the fish's body will stick to dry hands, exposing the fish to harmful bacteria once it's back in the water. With one hand, firmly hold the fish just behind its head over its gill covers, being careful not to touch its gills or eyes. Run the other hand down the line to the base of the hook. Gripping the hook by its shank, push the barb back through the hole in the fish's lip. If a fish has swallowed the hook, cut the line. You'll probably have ruined its appetite for a while but the fish will still survive. Try to keep the fish in the water if you can. If you can't, don't throw the fish back in; the impact will cause internal damage, killing it an hour or so later. Instead, lower it gently into the water cradling it until it gets its bearings and swims away on its own.

If you decide to eat your catch, you can either run a stringer hook through its bottom jaw and get it back into cool, circulating water. You can also kill the fish by severing its spinal cord just behind the head, and keep the fish on ice. Encourage your members to observe the gutting and cleaning procedure. Senior members could even help with the process.

If you are not comfortable with the process of fishing or filleting, you can call your local conservation office to see if they have instructors you can hire for help. They may also teach ice fishing in the wintertime!

Homemade Fishing Pole

Topic: Fishing

Learning outcomes:

- To create a fishing pole and try the sport of fishing.
- To achieve a sense of mastery.

Materials needed: One bamboo or fishing pole (in sections) per member, fishing line, one package mixed freshwater hooks, one package (about three) spring end pencil bobbers, one cup of worms (about two dozen), and a pail.

Time: Unlimited

Instructions:

This fishing rod does not require casting. This makes the fishing experience a little less frustrating for members (especially if they are very young).

1. Put together the sections of the fishing pole. The older the child, the more sections you should use. If the member is older, use all of the sections. The sectioned poles allows for versatility for each member.
2. Take the fishing line and tie the end securely near the fatter end of the tip sections. A series of granny knots or square knots will do if you wind the line around the pole a few times first. Then, spiral the line up to the tip of the pole and add half a dozen half hitches here. When this is done, if the tip breaks off, you will still be able to pull in the line with the rest of the pole.
3. Taking the spool of line in your hand, spiral the line back down around the pole all the way to the butt and add six inches. Then cut it.
4. To the end of the line, tie a hook on which you've flattened the barb with pliers. You can tie it on with half hitches or double the line and tie a half hitch in it to form a loop. Then put the loop through the hook eye and over the end of the hook. Pull the line and the loop will ride up the shank and stop at the eye.
5. Unspiral the line from the pole while holding the hook by the bend. Then after adding a heavy rubber band or a couple of wraps of duct type tape to the butt, catch the hook under this. Now, take the bobber and push back the little spring at the bottom. Wind the line through the slot twice, about three feet up from the hook and let go. The spring will return and catch the line.

6. Holding the pole by the butt, practice swinging it in such a way as to wrap the line around the pole, using the bobber as a pendulum.
7. When you get to the water, get the group to choose a place along the shore without overhanging tree branches or visible offshore woody snags.
8. When they've chosen a spot, unwrap and assemble the poles, leaving the hook caught under the butt, unspiral the line with a circular motion of the pole.
9. Choose a worm and push the hook point through the middle of the worm three times.
10. Swing out the hook and bobber. To do this, just point the pole tip out over the water and let the hook go. The line will swing out and when it is a full extension all you do is lower the pole tip until the line and bobber fall into the water.

Safety considerations: Flatten the barbs of the hooks with pliers.

Processing prompts:

- Was it fun to build your own fishing pole?
- What other ways do you think you could catch fish, without a store bought rod and reel?
- Do you feel that you were respectful to the fish and the environment? What are some of the ways we can protect the fish, when we are fishing?

All Things Green: An Introduction

Recommended Resources

National Audubon First Field Guide Trees
National Audubon First Field Guide Wildflowers

Caution!

When your members are identifying plants, flowers, or trees, it is important that they can recognize plants that can harm them. Here is a list of some plants that should be discussed with your group:

Poison Ivy

Poison Ivy is a low erect plant with leaves that grow in threes. These leaves turn red in the fall. All parts of this plant contain a powerful skin irritant. If this plant is touched, wash area of the skin with dish soap and water.

Poison Oak

Poison Oak is a low erect plant with leaves that look like leaves that would grow on an Oak tree. All parts of this plant contain a powerful skin irritant. If this plant is touched, wash the affected area of the skin with dish soap and water.

Stinging Nettle

Stinging nettle grows fairly tall and is a thin plant. It has many leaves that grow off of one shoot. The leaves are long and skinny with jagged edges. If the plant is touched, you will feel a stinging sensation on your skin. Wash the affected area of the skin with soap and water.

Crafting with Wildflowers

Topic: Wildflowers

Learning outcomes:

- To identify wildflowers.
- To be creative.
- To appreciate local flora.

Materials needed: A field guide to wildflowers, blotting paper, heavy books, and nature journals (optional).

Time: 30 minutes, and 45 minutes one week later.

Instructions:

1. Take your group to a location where there are a variety of wildflowers.
2. Take some time to identify some of the flowers to your group using a field guide.
3. Next, take some time to explain the importance of protecting these flowers so that they will continue to grow in their natural environment for years to come.
4. Each group member should pick no more than three or four flowers (or their greenery) to use for a craft project.
5. Place the pickings on some blotting paper. Remember to tell your group that when the plants are pressed, they will retain their shape exactly as you placed them.
6. Place the blotting paper between the pages of a heavy book.
7. Allow them to dry for one week.
8. Once the flowers and leaves are ready, members can include the flowers and their names in their nature journal, or make a greeting card or bookmark. Be creative!

Safety considerations: N/A

Processing prompts:

- Why is it important to know about the local plants and flowers? Are you more interested in them now that you know more about them? Why is that important?
- What are some ways you can protect wild plants?
- What is the difference between wildflowers and the flowers we buy at the store?

All Things Green

Intermediate

Senior

Collecting and Preparing Wildflower Seeds

Adapted from Drake & Love, The Kids Cottage Book

Topic: Wildflowers

Learning outcomes:

- To collect and prepare wildflower seeds for planting.
- To explore the process of plant reproduction.

Materials needed: A location with a variety of wildflowers, a wildflower field guide, containers or Ziploc bags, permanent marker to label the containers, newspaper, and peat moss.

Time: 1 hour

Instructions:

1. Once your group has found a location with a variety of wildflowers, distribute containers to each member.
2. Look for plants that have gone to seed. This means the plants have finished flowering and are ripening their seeds for the following year. Use the field guide to identify what types of wildflowers you have found.
3. Collect seeds from a variety of plants. Put them in labeled containers so members remember which plant is which. Make sure your group does not collect all of the seeds in the area; you want to leave lots of seeds in the natural environment for next year's growth.
4. Most seeds need to dry out and freeze before they will start to grow in the springtime. Therefore, you will have to simulate this experience.
5. Place each type of seed on a separate piece of newspaper to dry out in the sun or indoors.
6. Once the seeds have dried, store each type of seed in a container until late August or September.
7. Then, place each seed type in a container or jar (make sure to label them) and cover with slightly damp peat moss. Close the containers to be airtight.
8. Place the containers somewhere cool and out of the way. The seeds will hibernate and be ready to plant in the spring.

Variation: If your group does not meet for the amount of time that it takes to prepare seeds, send members home with their seeds with instructions on how to prepare them.

Safety considerations: N/A

Processing prompts (to be asked after seed collection):

- What types of seed did you collect?
- Where are you planning on planting the seeds in the spring?
- Why is it important to help protect local wildflowers?

All Things Green

Intermediate

Senior

Wildflower Seed Planting

Adapted from Carlson, EcoArt!: Earth-Friendly Art & Craft Experiences

Topic: Wildflowers

Learning outcomes:

- To gain an appreciation of the plant lifecycle and nurture a seed to life.
- To learn about local flora.

Materials needed: Eggshells, egg carton, soil or peat moss, wildflower seeds, and a permanent marker (enough for each member).

Time: 40 minutes

Special note: This is a great activity to follow the Collecting and Preparing Wildflower Seeds activity. Members will be able to begin the planting process with the group, and have wildflowers to plant in their own yards at home.

Instructions:

1. Rinse eggshells (you will probably want to ask your group to collect them at home and bring them in on the day you do this activity).
2. Label the top of the eggshells with the type of seeds you are going to plant in the shell.
3. Place the shell(s) in the egg carton.
4. Fill the shell(s) with soil or peat moss.
5. Sprinkle some seed in the shell(s).
6. Moisten the soil with water.
7. Soon, the shell(s) will sprout.
8. When members are ready to plant the wildflowers outside, they should plant the entire eggshell in the ground. The eggshell will provide minerals for the soil when it decays.

Variation: If your group hasn't collected their own seeds, wildflower seeds can be purchased at your local garden centre. Try to find varieties that grow in your local area. Or, even better, plant your provincial flower:

Yukon	Fireweed
Northwest Territories	Mountain Avens
Nunavut	Purple Saxifrage
British Columbia	Pacific Dogwood
Alberta	Wild Rose
Saskatchewan	Western Red Lily
Manitoba	Prairie Crocus

Ontario	Trillium
Quebec	White Garden Lily (Madonna Lily)
New Brunswick	Purple Violet
Nova Scotia	Mayflower (Trailing Arbutus)
Prince Edward Island	Lady's-slipper
Newfoundland	Pitcher-plant

Processing prompts (after the seeds have sprouted):

- What was it like to grow a seed? What role did you play?
- What did you learn about the plant you grew?
- Do you think it's important to learn about plant life? Why?
- Where are you going to plant your seedling?

All Things Green

Intermediate

Senior

Flower Face

Adapted from www.ultimatecampresource.com

Topic: Wildflowers

Learning outcome:

- To identify local wildflowers.

Materials needed: Map of area, pencil and paper, whistle, and a field guide to wildflowers.

Time: 1.5 hours

Special note: This game is best played in an area with a wide variety of wildflowers growing within a reasonable distance of one another. It is important for the group to have some knowledge of local wildflowers. This activity could follow the Crafting with Wildflowers activity or the Collecting and Preparing Wildflower Seeds activity. If this is not possible, you could have field guides on hand for members to identify the flowers while playing the game.

Instructions:

1. This game requires the assistance of eight or more leaders. (If you do not have enough leaders, have the members take turns in the leader's role. Leaders are 'planted' in specific locations prior to the start of the game. Each location has a wildflower growing close by. The leader draws up several sketch maps of the area in which the leaders (and wildflowers) are located.
2. Divide the group into teams. Each team is given a map, pencil and paper.
3. The leader explains these rules: Members of each team must hold hands throughout the game – this forces teams to slow down, and will avoid injury. Teams must return to the starting area in 30 minutes (a whistle will be blown).
4. The object of the game is to find the leaders who are hidden in the playing area, and to identify the wildflower found in the general location of each leader. Each team writes down the name of the wildflower and the name of the leader. A dot can be put on the map to indicate the location of the wildflower.
5. Teams search for as many leaders and flowers as they can find in 30 minutes. When the whistle sounds, all teams and leaders return to the starting area. The leader collects the maps and tallies the results. The team with the highest number of correct identifications wins.
6. The entire group can then discuss the types of wildflowers that grow in the area, and the characteristics of the various locations in which they can be found.

Safety considerations: Encourage teams to move at a slower pace to avoid injury.

Processing prompts:

- What was it like to work with your group? What role did you play? How did you contribute?
- What did you learn about the flowers in your area?
- How many new flowers did you see that you are not familiar with?

All Things Green

Junior

Intermediate

Leaf Prints

Topic: Trees and plants

Learning outcomes:

- To identify and appreciate local trees.
- To be creative.

Materials needed: Leaves, paint, paintbrushes, paper, field guide to trees, and nature journals (optional).

Time: 30 minutes

Instructions:

1. Take your group on a short hike and point out a variety of tree species, or have older members identify trees with a field guide.
2. Allow members to collect different varieties of leaves that have fallen to the ground.
3. Once all of your members are done collecting, set up an area for painting.
4. Members can make leaf prints by painting the leaf and printing it onto paper. Members can label the types of leaves they collected in their nature journal, or make an artistic painting with their leaves.

Safety considerations: Make sure your members are aware of plants that can cause rashes – refer to All Things Green: An Introduction.

Processing prompts:

- What is your favourite tree? Why? What do you like about it?
- Why do you think these trees grow so well in this area?
- What resources do trees provide? Who uses these resources?
- What are trees used for when they get cut down? What do you use trees for?

Processing activities:

- Draw the tree that the leaf came from and write a poem about it.
- Have the members write a description of the tree in their nature journal.

Leaf Hunt

Adapted from National Recreation and Park Association, Creative Recreation Programming Handbook: Ideas and Year-Round Activities for Children and Youth.

Topic: Trees and plants

Learning outcomes:

- To discover the diversity of a healthy forest.
- To be creative.

Materials needed: Paper (or nature journals), crayons, and a field guide to trees.

Time: 45 minutes

Special Note: This activity is most appropriate in the fall, when the leaves are naturally falling to the ground.

Instructions:

1. Plan a leaf scavenger hunt, giving members the names of 15 different leaves and their descriptions.

   Description examples: Leaf with a smooth edge
   Leaf that is wider at the top than at the bottom
   Leaf that is not green
   Leaf with a smooth texture

2. Members will have 20 minutes to find as many of the leaves on the ground as possible. Remind the group not to pull the leaves from the trees.
3. Members can then make leaf rubbings with the paper and crayons. They could do this activity in their nature journals.

Safety considerations: Know the plants in the area that can cause rashes or allergic reactions and point them out to your group – refer to All Things Green: An Introduction.

Processing prompts:

- How many different kinds of leaves did you find? How are they different?
- Do you know what types of trees the leaves came from?
- If you saw these trees in a different area, how would you identify them?

All Things Green

Junior

Intermediate

Meet my Friend

Adapted from www.ultimatecampresource.com

Topic: Trees and plants

Learning outcomes:

- To identify what trees and plants need to survive in their natural environment.
- To encourage a sense of connection and concern for the natural environment.

Instructions:

1. Members are taken on a short hike during which time each member collects something from the natural environment (nothing may be broken or picked from any living thing. The item has to be either lying on the ground or resting on another object (e.g. stump or log)). Everyone keeps his or her object hidden from all other members.
2. Following the hike, members will build a small home for their 'friend'. They are also asked to give their friend a name, and to think of one way in which they could take care of their friend if it was still in its natural environment.
3. When all the group members are ready, everyone will tour the small homes that have been created, and will meet each special friend.

Safety considerations: N/A

Processing prompts:

- Why did you choose your object? What do you like about it?
- Was it fun making up a story about it?
- Why is it important to learn about the things you find in nature?

All Things Green

Intermediate

Senior

Sketch a Plant

Adapted from outdoor-nature-child.com

Topic: Trees and plants

Learning outcomes:

- To identify a variety of plant and tree species.
- To appreciate the design and intricacies of plants.

Materials needed: Pencil crayons (lots of earth tones), paper, and nature journals (optional).

Time: 45 minutes

Instructions:

1. Take your group for a walk in a nearby natural area. Ask the group to keep their eyes open for a plant, flower or tree that catches their attention.
2. Once they have found one they like, ask them to sit down next to it.
3. Then, for the next little while, members will take a few minutes to get to know their plant. Is it in a sunny spot or shady? Is it alone or surrounded by other plants? Is it tall or short? Etc.
4. Once they have gotten to know their plant they can begin to sketch. This can be done in their nature journals. If they are struggling, ask them to focus on a few things. The leaves; what shape are they? What colour are they? Are their edges smooth or jagged? Now the stem; is it thick or thin? Round or square? Hairy or smooth? What colour is it? The flowers; are there flowers or berries? How many petals? What colour? What shape?
5. Once all of the members are finished their drawings, the group can come together and share their sketches. Having a field guide with local plants and wildflowers would help the group identify the names of the plants.

Safety considerations: N/A

Processing prompts:

- What kind of plant did you choose? Why?
- What is your favourite thing about your plant?
- What was the hardest part to draw? What about the easiest?

Switch

Adapted from the www.ultimatecampresource.com

Topic: Trees and plants

Learning outcome:

- To identify a variety of tree species.

Materials needed: An area with at least four types of trees.

Time: 30 minutes

Instructions:

1. Members are divided into four groups such as Spruce, Oak, Maple, and White Pine.
2. In an appropriate and defined area, players stand touching their trees - only one player per tree.
3. Choose a member to be "it". "It" stands at a centre spot and calls the name of a tree. "Oak" for instance. At this signal, the designated group changes places with one another, running from one Oak tree to another Oak tree.
4. "It" tries to claim a tree of their own during this process.
5. If "It" is successful in claiming a tree, the player who is left without a tree becomes the new "It".
6. If "It" calls "Forest", everyone is required to change to another tree of their team's name.
7. To end the game, it is fun to have "It" be "It" for four or five rounds of the game, calling "Forest" each time. As "'It" beats a player to a tree, that player is eliminated. In this way, some trees may be altogether wiped out from the forest, as could happen in our natural environment.

Safety considerations: Make sure members are moving at a slower pace to avoid tripping on twigs, roots, etc.

Processing prompts:

- Choose two unique things that you like about each tree?
- What are some of the ways that you can tell the tree types apart?
- Why do some trees disappear from an area? What impact does this have on the ecosystem in that area?

All Things Green

Junior

Intermediate

Senior

Meet A Tree

Adapted from Cornell, Sharing Nature With Children

Topic: Trees and plants

Learning outcomes:

- To encourage an appreciation of local tree species.
- To identify local tree species.

Materials needed: Blindfolds, and a field guide to trees.

Instructions:

1. Divide the group into pairs. Each pair should get a blindfold.
2. Once one of the pair is blindfolded, their partner will lead them through a wooded area to a tree of their choice.
3. The blindfolded member will explore this tree and discover its unique characteristics. Once the person feels like they "know" their tree, they should be led back to where they started by taking a different route.
4. Remove the blindfold and let them discover, once again, their tree.
5. Partners can then switch roles.
6. Ask pairs to identify the tree species using a field guide to trees.

Safety considerations: Make sure pairs are adequately guiding their "blind" partners, and that members are comfortable being blindfolded.

Processing prompts:

- How did you tell your tree apart from the others?
- Do you feel closer to your tree than all the others?
- Does knowing about something make it easier to protect? How can you protect all kinds of trees?
- How did you feel when you were blindfolded?
- How did your sighted partner support you?

Birch Bark Baskets

Adapted from natureskills.com

Topic: Trees and plants

Learning outcomes:

- To learn about the Birch tree.
- To be creative.

Materials needed: One square piece of birch bark (25 cm X 25 cm) for each member, one upholstery needle for each member, 3.5 metres of cord for each member, rulers, pencils, strong reeds, willow shoots, dogwood or other material to make a hoop for the rim of the basket, and sharp knives.

Time: 2 hours

Instructions:

1. Educate your group about the Paper Birch Tree:

    The genus name *Betula* means 'pitch' referring to the bituminous content of the bark that makes it highly flammable. The species name *papyrifera* means 'paper bearing' in reference to the white, papery, peeling bark.

    The Paper Birch is a deciduous tree that grows 30 to 40 metres tall. It is often multi-stemmed with upward-angle branches. The bark is reddish to coppery-brown when young, and turns white and peels with age. The peeled sections expose a reddish-orange inner bark that turns black with time.

    The leaves of a Paper Birch are oval with pointed tips and have coarse, irregular, double-toothed margins. The leaves are pale green in summer and turn bright yellow in the fall.

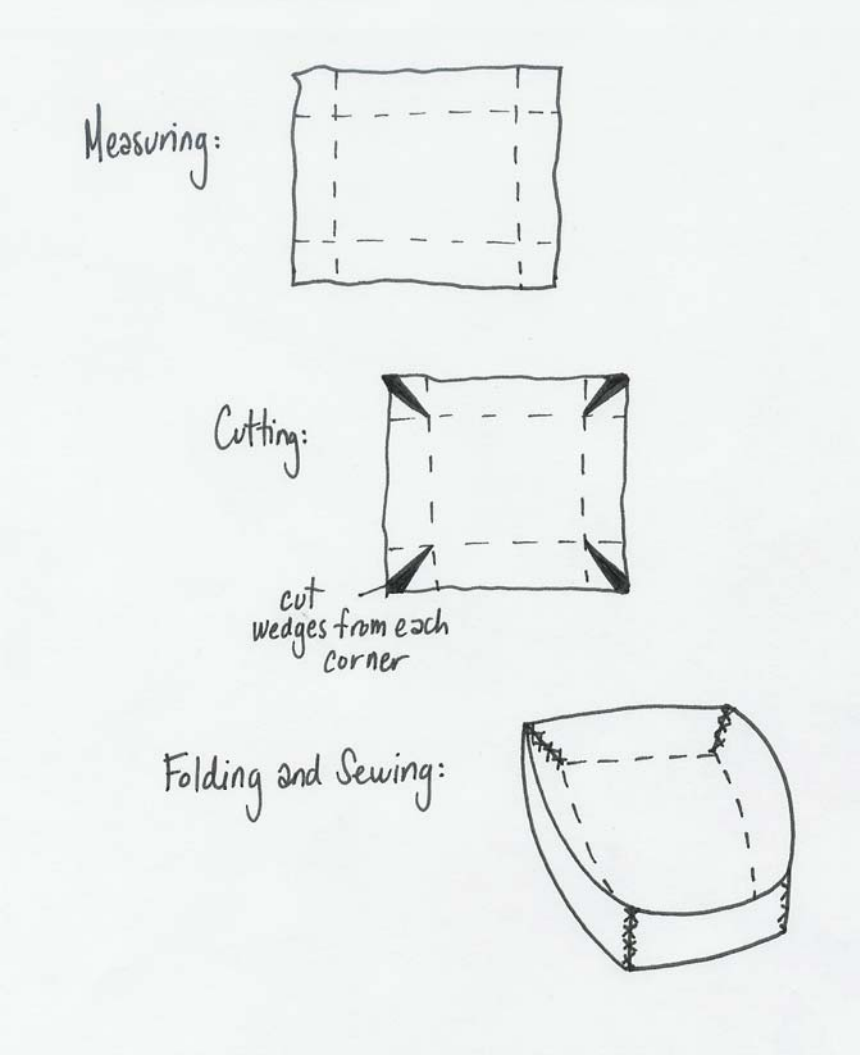
    The Paper Birch grows in all forested regions of Canada. It grows on forest edges, lakeshores, and roadsides on a wide variety of soils, but does best on well-drained soil.

2. Find a natural area that has an abundance of Paper Birch Trees.

    You should not need to take bark from a live tree. When Paper Birch trees die, the wood rots out from the inside, leaving the bark. Take bark from a dead tree, scrape or peel off the damp inner layers, and under this you should find pink bark.

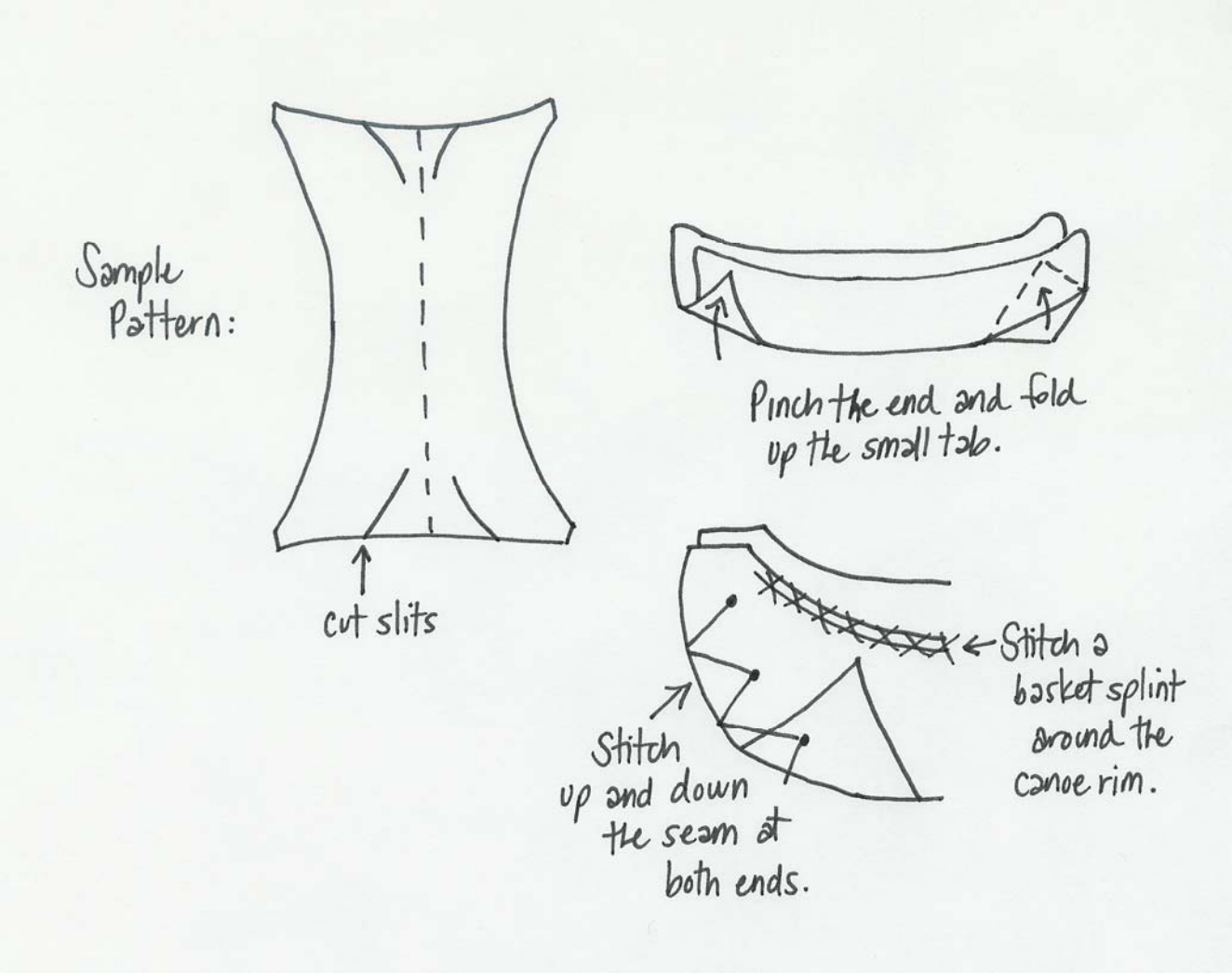
3. Steps to make the basket:

a. Measuring: Decide how tall you want the walls of your basket to be – for example, 4 cm. Then measure that distance in from each edge of the bark in several places on each side. Use the pencil to mark the 4 cm point along each edge. These lines show where your walls will fold up from the basket's bottom.
b. Cutting: Cut in from each of the corners to the intersections of the pencil lines.
c. Folding and sewing: One corner at a time, fold the walls up so the corners overlap. If you have used very thick bark, you may need to score with the tip of your knife along your pencil lines to get the sides to fold up. Be careful not to cut all the way through! Sew the walls together. Be very gentle when pushing your needle through so as not to tear the bark – never make a hole closer than 1.5 cm from the edge.
d. Make a hoop as close in size as possible to the rim of your basket. Lay the hoop on top of the basket and stitch it tightly onto the rim.



Variation: You can also use the birch bark to make a miniature canoe.

Soak a piece of birch bark in some water. Draw the pattern on your birch bark, similar to the pattern in the diagram below. Cut out the pattern, and then, carefully cut slits as shown. Bend in half (lengthwise) so that the woody side faces out. Pinch one end and fold up the small tab. Repeat with the other end. Stitch up and then down the seam at each end. Stitch a small basket splint around the canoe rim using a bendable branch. Spread the centre of the canoe to a 2.5 cm diameter.



Safety considerations: Make sure to remind your group to be safe with their sewing needles and knives.

Processing prompts:

- What are five things you learned about the Birch tree?
- What other uses does Birch bark have?
- Are you proud of the basket or canoe that you created? Why?
- Was this activity challenging?
- Did you learn a new skill?
- Will you use this skill again?

All Things Green

Junior

Intermediate

Senior

Collecting Wild Berries

Adapted from Beaven, Some Edible and Poisonous Berries in Alberta, Manitoba and Saskatchewan; Hosie, Native Trees of Canada

Topic: Edible wilds

Learning outcomes:

- To collect and eat a wild edible berries.
- To learn about local food sources.
- To learn the importance of identification.

Materials needed: An area with edible berries; raspberries, saskatoons (service berries or juneberries), cranberries, currants and/or blueberries, a container for each member, and a field guide of edible berries.

Time: 1 hour to collect berries

Special note: Combine this activity with the Cooking With Wild Berries activity to teach members how to use their collected berries in different recipes.

Instructions:

Take your group to an area that has wild berries. Make sure to point out all of the available berry varieties to your group. Use the field guide to identify berries if necessary.

Description of edible berries;

Blueberry: A low shrub, 30 to 60 cm high, found in open places across Canada. The purplish-blue to black berries ripen in July and August. All species are edible and delicious.

Cranberries: There are three varieties of cranberries.

High Bush: An upright shrub or small tree. They are one to four metres high found in moist woods, all across Canada. Fruit is red or purple from September to November. All species have edible fruit, which is tastier after frost.

Rock or Dry-Ground: A small trailing shrub with shiny evergreen leaves found in moist to wet coniferous woods with mosses. Red to red-purple berries from August into winter are sour.

Swamp or Bog: A creeping evergreen shrub with stems of three metres long and tiny leaves, forming dense mats in bogs and swamps. Sour, juicy red fruit ripens in September and October but is not very tasty when they are raw. The berries represent one of the most important fruits of Northern Canada and are fairly rich in Vitamin C.

Currants: The currant is a straggling, prickly or smooth shrub about one metre high, found across Canada. Red or black fruit ripens in August. Species vary considerably in flavour, some being very pleasant, and others less so. Many can be eaten fresh.

Raspberry: A prickly shrub, with erect stems. The raspberry has red or cream coloured fruit in August and September, and all species are edible and wholesome. This plant is found across Canada.

Saskatoon (Service Berry or June berry): Usually a shrub to 3 metres high, but may grow into a small tree. Found in most of Canada, except the north, with red to purplish or blue-black fruit from June to August. May be eaten raw. Berries contain an unusually high concentration of iron and copper.

Safety considerations: Do not let any of the members eat their berries until they have shown them to the leader of the group. This is especially important for younger members, as they will have more difficulty identifying the different types of berries. If the leader is unsure about the identity of the berry, and whether or not it is edible, err on the side of caution and do NOT eat it.

Processing prompts:

- What was it like to collect your own food? Have you done that before? What other food do you harvest yourself?
- What berry did you like the best? Name several key ways to identify each berry and their plant.
- Why is it important to know how to identify plants?

All Things Green

Junior

Intermediate

Senior

Cooking With Wild Berries

Topic: Edible wilds

Learning outcomes:

- To learn how to cook with local wild berries.
- To work as a team to create a homemade snack.

Materials needed: Wild edible berries and nature journals (optional). Check each recipe for the ingredients required.

Time: 30 minutes to an hour for each recipe.

Recipes:

Berry Apple Crumble (serves six)

3 large apples, peeled, cored and sliced
2 cups of wild edible berries, washed
1 tbsp lemon juice
½ tsp cinnamon
¼ cup brown sugar
½ cup flour
¼ cup oats
3 tbsp melted butter

Preheat the oven to 375°F and lightly butter a 10-inch baking dish.

In a large bowl toss the apples, lemon juice and cinnamon. Add the berries and toss gently. In another bowl combine sugar, flour and oats. Add the butter and stir. Pour the apple and berry mixture into the baking dish and arrange so that they are even. Sprinkle all of the flour mixture on top of the fruit.

Bake for 35 to 40 minutes, until the top is golden and the apples and berries are bubbling. Cool.

Berry Blast (serves six)

3 cups of wild edible berries, washed
6 cups crushed ice
1½ cup unsweetened apple juice
3 tbsp honey

Place all the ingredients in a blender and blend until smooth.

Berry Ice (serves four)

2 cups wild edible berries, washed
4 tbsp lemon juice
½ cup sugar
½ cup water

Mix ingredients together in a blender. Pour into popsicle moulds. Allow time to freeze.

Safety considerations: N/A

Processing prompts:

- Did you enjoy the taste of the recipes?
- While making the recipes, did you work together as a team? How?
- What role did you play?
- Would you make this recipe again?
- If members liked the recipe, they can write them in their nature journals.

All Things Green

Junior

Intermediate

Senior

Rose Hip Honey

Adapted from natureskills.com and Culpeper, Culpeper's Colour Herbal

Topic: Edible wilds

Learning outcomes:

- To learn about local food sources.
- To explore the process of making food from a natural food source.

Materials needed: Wild rose hips, honey, glass jars (one for each member), and nature journals (optional).

Time: 2 hours, plus the honey must sit overnight before eating.

Instructions:

1. Educate your group about the wild rose;

   Wild roses are abundant in prairie landscapes, especially in areas where there is water nearby. They like the sun. They can have pink, white or yellow flowers. These roses blossom on thorny briar tangles, flower through June, and begin to set and ripen their berries by early fall.

   Rose hips have been an important food for Aboriginal people. They are extremely high in vitamin C. When dried, they keep well, and will always be available through the winter months.

2. Find a natural environment that has wild rose bushes. Collect at least one cup of wild rose hips. Dried rose hips can also be purchased at specialty food stores.

3. Recipe: Split and de-seed the rose hips with a small spoon. Make sure all the little hairs are scooped out. Pack the rose hips into a glass jar to about half full. Fill the rest of the glass jar with honey. Let sit overnight. Enjoy on toast or muffins.

Variations: Rose hips can also be used to make tea. The tea is best with rose hips that have been dried in the sun. The rose hips should be boiled and covered for about ten minutes. The rose hips should expand (if dried), split, and the water will soften the seed within. The tea will be a pink colour and have an acidy taste. The tea tastes best when sweetened. Wild mint can be collected and added to the tea for a different flavour.

Safety considerations: N/A

Processing prompts:

- Did you enjoy the taste of the recipe?
- While making the recipe, did you work together as a team? How?
- What role did you play?
- Would you make this recipe again?
- If members liked the recipe, they can write it in their nature journals.

Looking at the Sky and the Weather: An Introduction

Recommended Resource

Peterson First Guides: Astronomy, Jay M. Pasachoff

Astronomy

Many of the constellation names that are used, come from the ancient Greeks. The Northern sky is covered with these constellations, since this is the part of the sky that was visible from the Greek Empire. A few hundred years ago, scientific expeditions went to the Southern hemisphere. It was then that they charted the other regions of the sky. These constellations reflect more modern ideas, with a focus on mechanical devices.

Weather

Canadians are always talking about the weather. Very few countries in the world have such a diversity of weather - not only from season to season but also from place to place. Weather affects what we eat, what we wear, how we feel, and even what we do.

Predicting weather is useful when traveling outdoors, and can help members understand and connect with the natural world around them. People have been using these methods throughout human history to help plan all aspects of their lives.

Summer Constellations

Adapted from Drake & Love, The Kids Cottage Book

Topic: Astronomy

Learning outcomes:

- To learn to identify constellations.
- To develop an appreciation of the night sky.

Materials needed: A field guide of constellations with a star map.

Time: As long as you can stay awake.

Instructions:

1. Looking north before midnight.

    a) Find the seven stars that form the **Big Dipper**. Follow where the water would pour from the **Big Dipper** to find the **North Star.**
    b) The **North Star** also forms the tip of the **Little Dipper**.
    c) Find the constellation **Cassiopia**, it makes a large W at the top of the Milky Way.

2. Looking south before midnight.

    a) **Sagittarius** is at the base of the Milky Way and looks like a teapot. The ancient Greeks believed it looked like a half-man half-horse.
    b) Beside the teapot, the constellation **Scorpius** has a giant red star **Antares** for a head.

3. Looking overhead before midnight.

    a) Find the Summer Triangle. It is made of the three brightest stars in the night sky – **Vega, Altair and Deneb.**
    b) **Vega**, the brightest star forms the centre of **Lyra** the harp.
    c) **Altair**, the southern star in the Summer Triangle, is the head of **Aquila** the eagle.
    d) **Deneb** is the star at the head of the Northern Cross.
    e) To the west of the Summer Triangle, look for the small and beautiful **Corona Borealis** also known as the Northern Crown.
    f) Far to the west is the bright orange star **Arcturus**. **Acturus** is at the bottom of a constellation that looks like a kite.

Safety considerations: N/A

Processing prompts:

- How did it feel to locate a constellation in the large night sky?
- Did everyone find the same constellations? Why or why not?
- How would it feel to use the night sky to navigate a trip?

Processing activity:

- Find your own constellation (picture in the sky) and write a story about it. Share your story with the group.

Winter Constellations

Adapted from Drake & Love, The Kids Winter Cottage Book

Topic: Astronomy

Learning outcomes:

- To learn to identify constellations.
- To develop an appreciation of the night sky.

Materials needed: A field guide of constellations with a star map.

Time: As long as you can keep warm, and stay awake.

Instructions:

1. Looking North.

    a) Find the seven stars that form the **Big Dipper**. Follow where the water would pour from the **Big Dipper** to find the **North Star.**
    b) The **Big Dipper** forms part of the **Great Bear**; a group of stars the ancient Greeks called **Arcticos** from which the word Arctic comes from.

2. Looking South.

    a) Look south to find the three stars of **Orion**'s belt. **Orion** has bright stars for his shoulders and knees and fainter stars for his sword.
    b) Find the nebula, a fuzzy gas and dust cloud. It is in the middle of **Orion's** sword. **Orion** the hunter fights the charging bull, **Taurus**.
    c) Following on **Orion's** heels is his dog, **Canis**, whose eye is the brightest star in the sky.

Safety considerations: N/A

Processing prompts:

- How did it feel to locate a constellation in the large night sky?
- Did everyone find the same constellations? Why or why not?
- How would it feel to use the night sky to navigate a trip?

Processing activity:

- Find your own constellation (picture in the sky) and make a story about it. Share your story with the group.

Admiral Beaufort Wind Scale

Adapted from Drake & Love, The Kids Cottage Book

Topic: Weather

Learning outcome:

- To learn about and appreciate the strength of the wind.

Materials needed: An area with trees, and a flag, windsock or leaves.

Time: Several short periods over several days.

Instructions:

1. Have your group categorize the wind at the same time every day, or every hour (if it is really windy) using the wind scale included below.
2. Use a flag, windsock, or leaves to determine the wind direction (an eastern wind blows from the east).

Wind Scale

Force 0	Calm – Leaves, branches and trees stand still.
Force 1-3	Light breezes - Leaves and small branches move.
Force 4-5	Moderate wind - Small trees sway.
Force 6-7	Strong wind - Big trees sway.
Force 8-9	Gale - Leaves and twigs snap off of trees.
Force 10-11	Storms - Large branches break off of trees; wide spread damage.
Force 12	Hurricane or tornado - Large trees fall down; disaster.

Safety considerations: N/A

Processing prompts:

- Did you find a pattern in the wind strengths at similar times of the day?
- What role does the wind play in nature? How does it help humans?
- What do you like best about a windy day? Do you use the wind for anything? What?

Natural Weather Reports

Adapted from Drake & Love, The Kids Cottage Book

Topic: Weather

Learning outcomes:

- To be able to predict the weather using natural signs.
- To develop an appreciation of weather patterns.

Materials needed: N/A

Time: A good activity to do while on a hike.

Instructions:

1. Write the predictors below on cue cards and have members carry them while on a hike.

   Fair weather can be predicted by observing the following:

   - Geese and crows fly high
   - Fishing is poor
   - Ants scurry
   - Pine cones, dandelions and marigolds open

   Foul weather can be predicted by observing the following:

   - Birds fly low and line up on power lines
   - Fish and flies bite
   - Ants travel in lines
   - Pinecones, dandelions, and milkweed pods close

2. As members identify a predictor, the group can stop and discuss these observations.

Safety considerations: N/A

Processing prompts:

- Which of the weather indicators have you tested? Which worked?
- How did people learn these signs? Why is it good to know them?
- Are there any other signs that predict weather?
- How can you predict weather by looking at the sky?

Make a Rainbow

Adapted from Sky Watchers Teachers Guide

Topic: Weather

Learning outcomes:

- To create a rainbow.

Materials needed: Clear plain glass bowl, water, flashlight, and a small flat mirror.

Time: 20 minutes

Instructions:

1. Place the bowl of water on a desk or table near a blank wall. Fill with water.
2. Put the mirror in the water so that the mirror rests against the side of the bowl at a 45-degree angle.
3. Standing behind the mirror, shine the flashlight straight down on the mirror.
4. A rainbow will appear on the wall opposite the mirror.

Safety considerations: N/A

Processing prompts:

- What was it like to make your own rainbow?
- When do you see rainbows outside?

The Rain Game

Adapted from the Curriculum Archive

Topic: Weather

Learning outcome:

- To learn about the precipitation process.

Materials needed: Assorted coloured construction paper, rope or hula-hoop.

Time: 45 minutes

Instructions:

1. Tape assorted pieces of construction paper in a random pattern on the ground. Make sure that there are as many pieces of paper as there are members in the group.
2. The members should choose a piece of construction paper, and stand on it with their arms outstretched.
3. Explain that each member is acting as the beginning of a raindrop in a cloud, called a cloud drop.
4. Tell the members that they are going to pretend to be blown around by the wind. When the leader says "go", have the members move from their piece of paper to another of the same colour, keeping their arms spread out.
5. Each time one member touches another; they should grab hands as if they were becoming a larger cloud drop. They will continue to move to a piece of paper, which has the same colour as the one from which they came.
6. If members from two different colours should happen to collide en route, they should combine and move to the closest piece of coloured paper. This will be the group's new colour.
7. Larger drops move about intermixed with smaller drops and continue to combine in a similar manner.
8. When a drop has five members, they have formed a raindrop. This grouping of five should move to the puddle area and sit down. The puddle area can be defined by a roped off area or hula-hoop located out of bounds.
9. If drops combine to make a rain drop of six or more members, they should divide in half, choose new colours, and continue to move throughout the cloud.
10. Continue this game until the cloud is rained out and the puddle is full.

Safety considerations: N/A

Processing prompts:

- Did this activity increase your understanding of the precipitation process? How?
- What could you have done differently to help your raindrop team?

Build a Rain Gauge

Adapted from Sky Watchers Teachers Guide

Topic: Weather

Learning outcomes:

- To make a rain gauge.
- To learn about the precipitation process.

Materials needed: A plastic two-litre pop bottle with straight sides, ruler at least 15 cm in length, scissors, stones or large gravel, tape, and water.

Time: 1 hour

Instructions:

1. Cut the bottle about ten centimeters from its top. Save the top part of the bottle.
2. Place stones or gravel in the bottom of the bottle until they fill the little bumps in the bottom. This will add weight to the gauge to make it more stable.
3. Tape the ruler to the side of the bottle so that the zero mark on the ruler is a centimeter or two above the stones.
4. Pour enough water into the bottle so that the water level is at the zero mark on the ruler.
5. Take the top of the bottle (the part you cut off earlier), turn it upside down, and put it into the bottom portion so that it looks like a funnel.
6. Place your gauge in an open area away from trees or buildings, which may affect the amount of rain that falls into the bottle.
7. When it has rained, take a reading using the ruler taped to the side of the bottle.
8. Pour out the excess water until the water level is once again at zero. (If you pour out too much water, simply add more until the water level again reaches zero on the ruler).

Safety considerations: N/A

Processing prompts (to be discussed after several days of collecting rain):

- How much rain did you collect? Did you notice when it rained the most? When it rains, what other weather changes occur?
- How do we benefit from the rain?
- What is your favourite thing to do on a rainy day?

How Big is a Rain Drop?

Adapted from Sky Watchers Teachers Guide

Topic: Weather

Learning outcome:

- To observe and compare different sizes of raindrops.

Time: 30 minutes

Materials needed: A dark sheet of construction paper for each member, and a rainy day.

Instructions:

1. On a rainy day, take your group outside. Each member will hold a piece of dark construction paper parallel to the ground in the rain.
2. Collect at least 25 drops of rain; this should only take five to ten seconds.
3. Return indoors and observe the raindrops on the pieces of paper.
4. The raindrops will have made marks of various sizes on the construction paper.
5. Measure the diameter of the raindrops, categorize them and chart the results.
6. Repeat the process at the beginning, middle and end of a rainstorm and record your results on a chart.

	1-10 mm	1 cm	2 cm	3 cm	4 cm	>5 cm
# of drops						

Variation: This activity could be done with snowflakes instead of raindrops. Once members have collected snowflakes on their paper – take the paper indoors, allow the snowflakes to melt, and record the results.

Safety considerations: N/A

Processing prompts:

- How many different sizes of raindrops do you see?
- Are your results different at different times in the storm?
- Are everyone's results the same?

Make a Wind Streamer

Adapted from Sky Watchers Teachers Guide

Topic: Weather

Learning outcome:

- To learn a technique that demonstrates the direction the wind is blowing.

Time: 30 minutes

Materials needed: Large paper plate, magic marker, scissors, crepe paper streamers, coloured pencils or felt pens, paste or tape (enough for each member), and a compass (optional).

Instructions:

1. Draw a cross on the bottom of the paper plate.
2. Cut a hole 2.5 cm by 2.5 cm at each of the four ends of the cross about 1.5 cm from the edge of the plate.
3. Using the crepe paper cut four streamers about two metres in length.
4. Thread one end of a streamer through one of the holes in the plate.
5. Pull the streamer through until the ends are even.
6. Using the two ends, tie a knot in the streamer tight against the plate. You should now have two lengths of crepe paper hanging freely from the plate.
7. Now repeat this step until all four holes have streamers in them. Write in capital letters N (north), E (east), S (south), and W (west) next to each hole.
8. To use the wind streamer, take your group outside and have each team do the following (you may want to take a compass):
    a. Find an area outside where there are no buildings or woods to interfere with the wind, a hill for instance or a playing field.
    b. Hold the wind streamer in front of you so that the plate is parallel with the ground and your thumb is on top of the plate near the letter S.
    c. Turn the plate so that the N on your wind streamer is facing north. You can find north the first time using a compass or look for a landmark such as a lake or a building which is to the north.

Safety considerations: N/A

Processing prompts:

- Did the wind direction change?
- Why are people interested in wind direction?
- What are some ways humans use wind power?

What Does UV Do?

Adapted from Sky Watchers Teachers Guide

Topic: Weather

Learning outcomes:

- To demonstrate the effect of UV rays on newspaper.
- To discuss how to protect our skin from UV rays.

Time: 2 hours

Materials needed: Newspaper, book, clear glass bowl, and a piece of plastic such as a pair of work glasses.

Instructions:

1. On a sunny day in May or June spread a newspaper out on a flat surface before 10:00 a.m. Place a book on the left side of the paper and invert the bowl on the right side. Place the plastic in the middle of the paper. Make sure the paper stays out of the shade.
2. Leave the paper exposed, untouched for at least four hours.
3. After 2:00 p.m., remove the objects from the newspaper and note any differences in colour.
4. The exposed portion of the newspaper should have yellowed. The part of the paper that was under the book should still be white; the part under the plastic should have coloured slightly; and the part under the glass bowl should have yellowed even more but not as much as the totally exposed portion.
5. UV rays affect the colour of newspaper. Plastic blocks more UV rays than glass, but the book offered the most protection.

Safety considerations: Wear sunscreen when outside.

Processing prompts:

- When are we exposed to UV rays?
- How does it affect us?
- How can we protect our skin from UV rays?

Make Your Own Tornado

Adapted from Sky Watchers Teachers Guide

Topic: Weather

Learning outcome:

- To create and observe a model tornado.

Materials needed: Two, 2-litre clear plastic soft drink bottles, water, food colouring (optional), duct tape, scissors, pencil, ruler, and cloth or paper towels.

Time: 30 minutes

Instructions:

1. Fill one of the bottles with water until it is half full. Add a few drops of food colouring to make the water more visible.
2. Cut a piece of duct tape, which is five cm long, and cover the mouth of the bottle, which contains the water.
3. With the pencil, make a hole in the centre of the duct tape. Make sure that the hole is a little bigger than the pencil.
4. Take the second bottle and turn it upside down on top of the bottle containing the water, so that the mouths of the bottles line up. With the cloth or paper towel, wipe any moisture from the necks of the two bottles.
5. Cut more duct tape and wrap it around the necks of the bottles so they are firmly attached.
6. Hold the two bottles by the neck, invert them so that the bottle containing the water is on top, and immediately start spinning them in circles.
7. Put the bottles on the table with the empty one on the bottom.
8. Watch what happens.

Safety considerations: N/A

Processing prompts:

- What was it like to build your own tornado?
- Have you ever seen a real tornado?
- Why is it important to study tornados?

How Water Vapor Enters the Air

Adapted from Sky Watchers Teachers Guide

Topic: Weather

Learning outcomes:

- To explore a component of the water cycle in nature.
- To actively study evaporation and transpiration.

Materials needed: Water, saucer or shallow bowl, tape, a healthy houseplant, and a plastic bag.

Time: 30 minutes

Instructions:

1. Pour some water onto the saucer or shallow bowl.
2. Next, mark the height of the water level with a piece of tape. Place the dish on a windowsill for the day.
3. Wrap the plant (pot and all) in the plastic bag and put it on the windowsill for a few hours.

Results:

1. The amount of water in the dish will decrease. This is due to water evaporating as vapor and entering into the air.
2. The bag around the plant will collect condensation. This is from water vapor escaping the leaves of the plant, called transpiration.

Safety considerations: N/A

Processing prompts:

- When does evaporation and transpiration occur in nature?
- Why are they important?

Build a Thermometer

Adapted from Sky Watchers Teachers Guide

Topic: Weather

Learning outcome:

- To build a homemade thermometer.

Materials needed: Glass jar (the smaller and narrower, the better), a small quantity of cooking oil, stopper or cork for the jar, a sealant such as petroleum jelly, candle wax or modeling clay, several drops of food coloring, clear narrow drinking straw at least 15 cm long, eye dropper, water, an index or recipe card about 8 cm by 13 cm, and a thermometer for reference.

Time: 1.5 hours and short periods over several days.

Instructions:

1. Fill the glass jar with water and add a few drops of food colouring to make the water visible.
2. Cut a hole in the stopper or cork, just large enough to slip the straw through. Place the stopper in the jar and insert the straw through the hole.
3. Add more water, but this time, through the straw until the water is about one quarter of the way up the straw.
4. Seal the straw into the stopper and the stopper onto the jar using either the petroleum jelly, modeling clay, or candle wax.
5. Finally, put a drop of the cooking oil into the straw so that the oil sits on top of the water. The oil prevents the water from evaporating.
6. Attach the index card to the straw. Allow the homemade thermometer to settle for two or three hours.
7. Now, use your reference thermometer to calibrate your homemade thermometer. To do this, note the level of water in the straw and mark a line on the card. Beside the line, record the temperature shown on your reference thermometer. Do this several times over a few days.
8. Record the temperature readings of both thermometers and compare the results.

Safety considerations: N/A

Processing prompts:

- Where do you use a thermometer at home?
- What was it like to build your own thermometer?
- Was your thermometer useful? Accurate?
- How did people tell the temperature before thermometers were invented?

Make a Barometer

Adapted from Sky Watchers Teachers Guide

Topic: Weather

Learning outcomes:

- To build a homemade barometer.
- To explore and understand air pressure and forecasting.

Time: 1 hour

Materials needed: Empty glass container or soup can, elastic band, glue, adhesive tape, balloon, drinking straw, and an index card about 8 cm by 13 cm.

Instructions:

1. Cut a piece of the balloon large enough to cover the top of the glass jar or soup can.
2. Stretch that piece of the balloon tightly over the top of the jar, or can, and secure it in place with the elastic band.
1. Cut the straw so that it is about 10 cm long and trim one end to a point. With the sharpened end pointing out, lay the straw on the balloon with the flat end at about the centre of the balloon. Glue the straw in place.
2. Draw reference marks on one of the long edges of the card at roughly half-centimetre intervals.
3. Tape the opposite (unmarked) side of the card to the jar, with the narrow end of the rectangular card extending above the jar top and the marked edge just behind the straw.
4. The marked edge should stick out so that the sharpened end of the straw points to the reference marks.

Results:

The piece of the balloon that is stretched across the jar will act as a membrane. When the air pressure outside the jar rises, it will push down on the balloon, forcing it slightly into the jar. This, in turn, will cause the end of the straw to rise. Similarly, when the air pressure outside falls, the air pressure in the jar will be greater than the air pressure around it forcing the balloon to bulge slightly. This will cause the end of the straw to drop.

You can chart the position of the straw against the reference marks on the card each day. This will not give you a numeric reading, but it will tell you whether the air pressure is rising or falling. The pressure trend is an important tool in forecasting.

Please remember to keep your barometer away from sources of heat such as radiators and sunny window ledges. If it is close to a source of heat, then your barometer will act more as a thermometer, with the air inside expanding and contracting to reflect changes in temperature, not pressure.

Safety considerations: N/A

Processing prompts:

- Do you use a barometer at home?
- What was it like to build your own barometer?
- Was your barometer useful? Accurate?

Eye on the Environment: An Introduction

This section will allow 4-H members to explore their environment and how it affects them.

They will learn about habitats, food chains, relationships, ecosystems, and have the opportunity to discuss environmental issues.

What We All Need

Adapted from Project Wild, Elementary Activity Guide

Topic: Habitat

Learning outcome:

- To identify the basic concepts of what we need to survive: food, water, shelter, space, arrangement, sunlight, soil, and air.

Materials needed: Flip chart, marker

Time: 30 minutes

Instructions:

1. The leader will make three columns on the chart at the top labeled people, pets, and wildlife.
2. Ask the group what people need to live. Write the answers in the people column. Repeat this process for pets and wildlife.
3. Ask the members to group like ideas from the three columns. This should narrow the list to major ideas including food, water, shelter, space, etc.

Safety considerations: N/A

Processing activities:

- To take the discussion and theories into the real world, go for a field trip into your community or natural park and find examples of these concepts.
- Look for these basic needs in an urban environment and a rural environment.
- Compare animals' needs and humans' needs and lead a discussion around how we meet those needs.
- Look around the community, are there people that do not have all of their basic needs met each day? Why?

A Home is a Habitat

Adapted from Project Wild, Elementary Activity Guide

Topic: Habitat

Learning outcomes:

- To explore what is needed for a healthy habitat.
- To appreciate why wildlife need a healthy habitat.

Materials needed: Paper, crayons, and nature journals (optional).

Time: 1 hour

Instructions:

1. Explain to members that the scientific name for a home is habitat. This includes food, water, shelter, and space.
2. Ask the members to draw a picture of their home (habitat) and include all of the components. This can be done in their nature journals.
3. Then ask the members to pick an animal and draw a picture of their habitat. You may want to show pictures of habitats, or take a walk outside to observe habitats.

Safety considerations: Be careful not to disturb any habitats.

Processing prompts:

- Share your pictures with each other (present them to the group).
- What things can you find that are in all of your pictures? Why do you think they are in everyone's "habitat"? Are there any differences?
- What are some differences between the human habitat and the animal habitat?
- What are some things that are the same?
- What makes a healthy habitat for animals? What do they need? How can we protect animal habitats?

Jar Forest

Adapted from Project Wild, Elementary Activity Guide

Topic: Ecosystems

Learning objectives:

- To observe and describe succession.
- To understand this natural cycle and observe examples in the local environment.

Materials needed: 1L jar for each member, water, soil, aquatic plant, birdseed, and nature journals (optional).

Time: 10 minutes per session, every two days.

Instructions:

1. Explain to the group that succession describes the ever changing environment, and the process where one habitat is replaced by another. This activity will show how a swampy environment can be replaced by a forest.
2. Put five cm of soil and 7.5 cm of water in each jar. Put the lid on the jar and let it settle on a windowsill overnight.
3. Plant the aquatic plant in the jar. Do not water.
4. Twice a week, add three to four birdseeds. The first will rot. Continue to add seeds as the water evaporates.
5. As the water evaporates, the aquatic plant will die and the seeds will begin to grow. At this point, add water to substitute for rain and to keep the soil damp.

Safety considerations: N/A

Processing activities:

- This is a long-term project. To keep track of the stages of succession, have members draw what is happening to their pond. This can be a basis for ongoing discussions throughout the project and can be done in their nature journals.
- Lead a discussion about natural areas in their community that have or are visibly undergoing change.

Eye on the Environment

Junior

Intermediate

The Thicket Game

Adapted from Project Wild, Elementary Activity Guide

Topic: Relationships

Learning outcome:

- To explore the concept of camouflage and how animals hide in the wild.

Materials needed: Blindfolds, wooded area where members can hide safely, and a whistle.

Time: 1 hour

Instructions:

1. Explain to your group that animals need to fit into their environment in order to survive. Animals need the ability to hide from other hunting animals. The better camouflage an animals has, the better they can hide and survive.
2. Blindfold one member who will be the 'predator' and count slowly to 15. The others hide in places where they can still see the predator.
3. After counting, the predator can remove the blindfold and begin to look for the 'prey'. The predator can turn around, squat or stand up tall, but must not walk. When the predator sees a prey they should identify them by name and that prey then becomes a predator.
4. When the original predator cannot see anymore of the prey, all of the predators put on blindfolds and count to ten while the prey moves in closer. When the predators remove the blindfolds they take turns naming the prey that they can see until all of the prey have been caught.
5. Play another round.

Safety considerations: The leader should use a whistle at the end of each round to alert all of the members to return.

Processing prompts:

- What would make it easier or harder to play the game?
- Would wearing different clothes make a difference? What about the time of day?
- What are some ways that animals camouflage themselves?

Eye on the Environment

Junior

Intermediate

Damaging Games

Adapted from Project Wild, Elementary Activity Guide

Topic: Environmental awareness

Learning outcomes:

- To create an awareness that some activities, games, or pastimes can harm the environment.
- To brainstorm and offer environmentally friendly alternatives.

Materials needed: Playing field.

Time: 1 hour

Instructions:

1. Take your group outside and ask them to look for evidence of harm on the environment i.e. graffiti, carving on trees, etc…
2. Ask members to invent games that do not harm the environment or that would contribute to keeping the area clean.
3. Play. The leaders should have some games in mind.

Safety considerations: Play on even ground with few obstructions.

Processing prompts:

- What were all the signs of impact that were found in the area?
- Why do you think people act carelessly towards the environment?
- Which one of the games that we played was your favourite?
- Is it important for you to protect the environment? Why?

Eye on the Environment

Junior

Intermediate

Swamp Things

Adapted from Drake & Love, The Kids Cottage Book

Topic: Ecosystems

Learning outcomes:

- To observe and learn about the small aquatic life that is found in a swamp.

Materials needed: A swampy area, a pail for each member, small plastic container for each member, large glass jar, white sheet, and the swamp things identification page.

Time: 2 to 3 hours, checking over several days.

Instructions:

1. Group members should stand at the edge of the swamp, dip a plastic container into the water, and pour it into the pail.
2. When the pail is full, pour it into the jar and put the jar on the white sheet away from the sun.
3. Observe the jar each day. When fresh water is added, record the observations. New creatures will begin to hatch, predators may eat others, and some creatures will grow. Try to identify them with the identification page.
4. After a few days, return the swamp water back to the swamp.

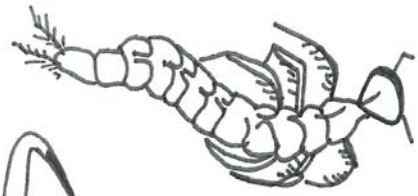
Safety considerations: Do not collect larger swamp things like turtles, salamanders, or toads and frogs. These swamp creatures do not live well in jars and can be injured by people's hands.

Processing prompts:

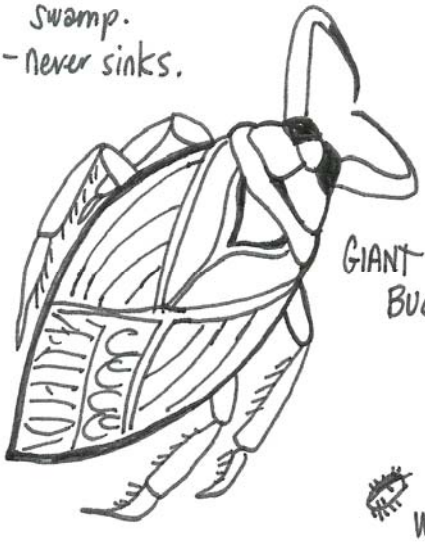
- What different creatures did you find? What were your favourites? What were the weirdest?
- Did you see anything that you did not know lived in swamps?

Swamp Things

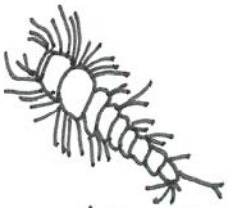
WATER STRIDER
- lives on the surface of the swamp.
- never sinks.



WATER TIGER



GIANT WATER BUG

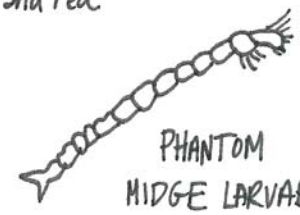


MOSQUITO LARVAE

WATER MITE
- tiny and red

BACKSWIMMER
- the bubble at the end of it's body is a reserve tank for use until it can get back to the surface

DRAGONFLY NYMPH
- moves by squirting water out of it's behind



PHANTOM MIDGE LARVAE
- the body is See-Through
- most active at night

Make a Water Scope

Adapted from Drake & Love, The Kids Cottage Book

Topic: Ecosystems

Learning outcomes:

- To observe and learn about life that is found in the marsh.
- To gain an appreciation for wetlands.

Materials needed: Large yoghurt container for each member, clear plastic wrap, strong elastic bands, a marsh, and nature journals (optional).

Time: 2 hours

Instructions:

1. Cut the bottom of the containers.
2. Stretch plastic wrap over the hole and secure it with an elastic band.
3. Lower the plastic covered end into the water to get a clear view of what is beneath the waters surface.
4. Have the group keep track of what they see and observe. Use written descriptions or drawings. This can be done in their nature journals.

Safety considerations: Make sure the group is careful when they are at the edge of the marsh.

Processing prompts:

- What different creatures did you find?
- What were your favourites? What were the weirdest? What were the coolest?
- Did you see anything that you did not know lived in the marsh?

Processing activity:

- Have members share their descriptions or drawings with the group.

Micro Trek Scavenger Hunt

Adapted from Project Wild, Elementary Activity Guide

Topic: Environmental awareness

Learning outcomes:

- To appreciate that humans share the environment with wildlife.
- To understand and be aware that wildlife is all around us, in our daily lives.

Materials needed: Magnifying lens for each member, digging tool, notebook and pencil (or nature journal), list of evidence, and an outdoor space.

Time: 2 hours

Instructions:

1. Take your group outside and ask them to find evidence of the following (careful not to damage any wildlife):

    - Humans and wildlife share environments.
    - Humans and wildlife must adjust to their environment, move to a more suitable environment or perish.
    - Wildlife is all around us, even if we can't see or hear it.
    - Wildlife ranges from large to small.
    - People and wildlife experience some of the same problems.
    - People and wildlife both need a place to live.

2. Members should spend up to 15 minutes on each item. Descriptions can be written or drawn and should be presented to the group when the hunt is over.

Safety considerations: N/A

Processing activity:

- Provide ample time for stories, discussions, and sharing of observations made.

Eye on the Environment

Intermediate

Seed Walk

Adapted from Project Wild, Elementary Activity Guide

Topic: Relationships

Learning outcome:

- To explore how animals and other forces in nature transport seeds.

Materials needed: One old fuzzy sock for each member, and a notebook and pencil (or nature journal).

Time: 1 hour

Instructions:

1. Have the members put their old sock on inside out over their shoe. In pairs, members will go on a short walk outside. Each group should take a different path.
2. When the members return to the group, have them check the bottom of their sock.
3. Record what they have found in their notebooks.
4. Members may plant the seeds that they have found.

Safety considerations: N/A

Processing prompts:

- What kinds of things did you find on your sock?
- How many different types of seeds did you find? How were they attached?
- What roles do animals play in moving seeds around? Why is moving around important for the seeds? What other ways do animals help move seeds around?
- What other ways do seeds get around?

Eye on the Environment

Intermediate

Polar Bears in the Zoo

Adapted from Project Wild, Elementary Activity Guide

Topic: Environmental awareness

Learning outcome:

- To have an open discussion about animals in zoos.

Materials needed: Building materials, popsicle sticks, toothpicks, glue, tape, cardboard, and markers.

Time: 1 hour

Instructions:

1. Educate your group about polar bears:

   Polar bears live on the ice 90% and on the land 10% of the time. They get most of their food from the sea. During the short summer in the artic they do look for food on the tundra.

   Polar bears weigh 300-400 kg when fully grown and can jump up to four metres. Their enclosure contains everything the bear needs to survive: a sleeping place, hiding place or den, pool, source of drinking water, food and space for exercise.

   The main function of a zoo is to display animals in their natural habitat. The environment in the zoo must be suited to the animal's natural habitat.

2. Ask members to research the habitat of their favourite wild animal, use the polar bear as an example.
3. Have the members design and build a zoo enclosure for their animal incorporating all aspects of their habitat.
4. Display the models of the zoo habitats.

Safety considerations: N/A

Processing prompts:

- Have each member give a tour of his or her enclosure.
- In this activity, do you think we designed enclosures that meet the needs of the animals? What kinds of things did everyone put in their enclosures? What kinds of things do all animals need?
- Why do you think we have zoos? What do you like about zoos? What do you not like about zoos?

Eye on the Environment

Intermediate

Senior

Predator Prey

Adapted from Project Wild, Elementary Activity Guide

Topic: Relationships

Learning outcome:

- To explore the predator/prey relationship.

Materials needed: Food tokens (three per member), face paint, and five hula-hoops.

Time: 2 to 3 hours

Instructions:

1. Educate your group about predator/prey relationships:
    - Predators are animals that eat other animals.
    - Prey are animals that are eaten.
    - Limiting factors are those that influence the life of the animal i.e. disease, pollution, and famine.
2. Identify members as either predator or prey with face paint (one predator: four prey).
3. Mark one end of the field as the food source, and the other as shelter. Scatter the hula-hoops around the field as extra shelter for prey.
4. As the round begins, the prey will start from the shelter end and move to the food source. They will collect a token, then move back to the permanent shelter area and repeat this process.
5. The predators will try to catch the prey and collect a food token by tagging them. Once tagged the prey is frozen.
6. The prey must have three tokens and not be frozen at the end of the round (five to seven minutes).

Safety considerations: N/A

Processing prompts:

- What was it like to be the prey or the predator?
- What strategies did you use when you were the prey or the predator?
- Why are there prey and predators in nature? What do you think the ratio is? Why?
- What role does this relationship serve in nature? How have humans affected this relationship?

Pesticides and the Food Chain

Adapted from Project Wild, Elementary Activity Guide

Topic: Food chains

Learning outcomes:

- To explore the concept of "pesticides in the food chain".
- To raise awareness of this environmental issue.

Materials needed: 2/3 white and 1/3 coloured pipe cleaners (30 per member), and face paint.

Time: 1 hour

Instructions:

1. Educate your group about pesticides:
    - Pesticides have been developed to control organisms. These poisons often end up where they are not wanted.
    - Food chains are a chain of living things in a community based on one eating another.
2. Scatter the food (pipe cleaners) around the playing area.
3. Divide the group into teams so there are three times as many shrews as hawks, three times as many grasshoppers as shrews, all identified by face paint.
4. Grasshoppers receive a bag representing their stomach. They are released first to hunt for food.
5. After 30 seconds, the shrews are released to hunt the grasshoppers by tagging them and collecting their bag. When grasshoppers are tagged they will leave the play area.
6. After one minute, the hawks are released to hunt the shrews in the same manner.
7. Once all of the bags have been collected, the group will reunite.
8. The players will empty their bags onto the ground. The hawks count their food pieces and separate them into white and coloured.
9. Explain that the coloured pieces are covered in pesticides.
10. Anyone that has come in contact with pesticides either by eating them, or consuming an animal that has, is now sick.

Safety considerations: The use of pesticides, like any environmental issue, can be a regionally sensitive topic, stick to presenting factual information.

Processing prompts:

- Were you surprised at how many pesticides the hawks ended up eating?
- What have you learned from this activity?

Environmental Coat of Arms

Adapted from Sawyer, The NESA Activities Handbook for Native and Multicultural Classrooms

Topic: Environmental awareness

Learning outcomes:

- To raise awareness of local environmental issues and to help in articulating personal values and beliefs around those issues.
- To personalize environmental advocacy and encourage discussion and action around issues.

Materials needed: Blank coat of arms for each member, pencil crayons, markers.

Time: 1 hour for creation, 30 minutes for sharing

Instructions:

In the blank areas in the coat of arms:

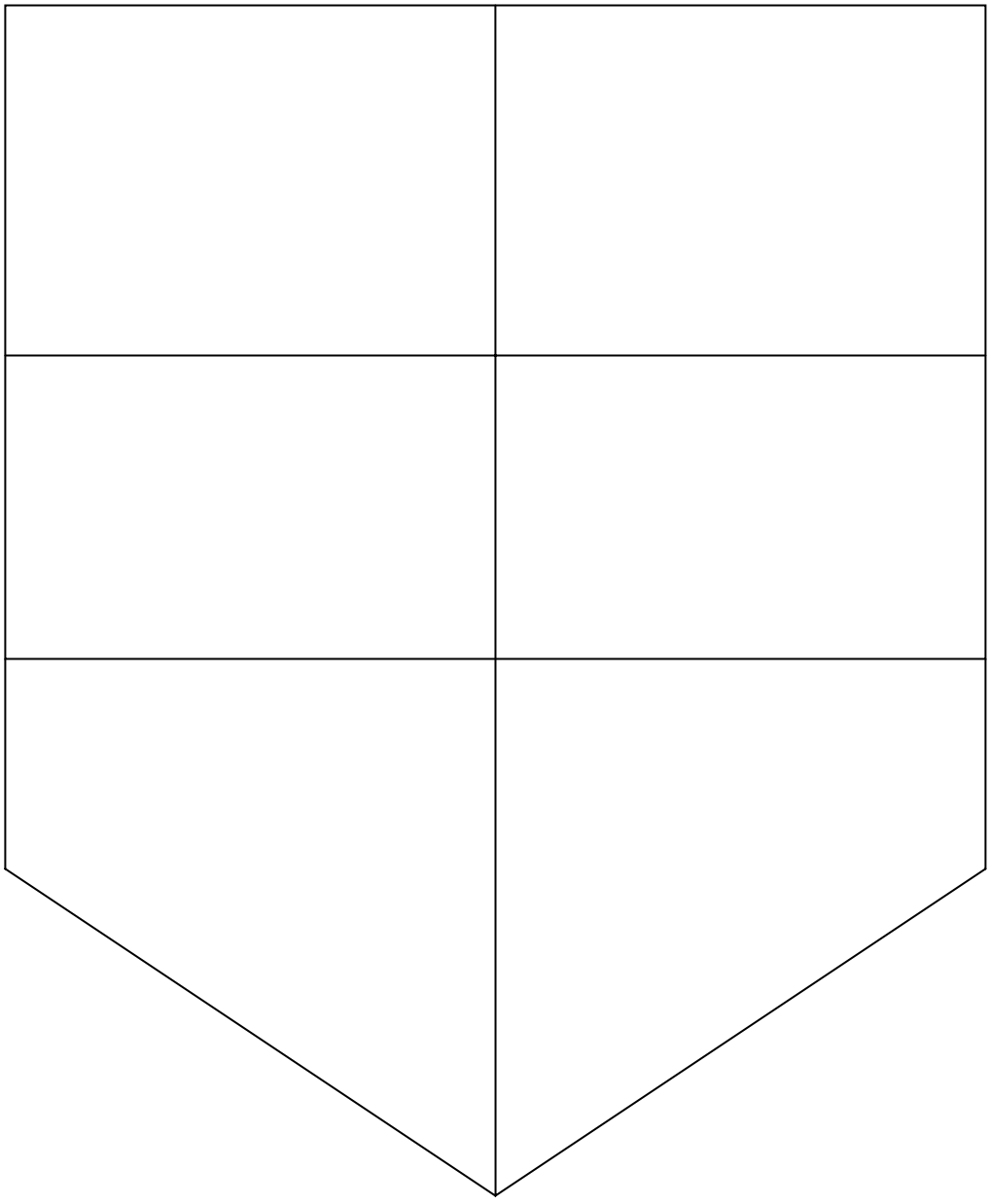
1. Draw an area of the environment that is important to your community.
2. Draw an area of the environment that is at risk in your community.
3. Draw a solution that you can be a part of.
4. Draw a solution that your community can be a part of.
5. Write why this area of the environment is important to your community, and write what would be lost if the area is not managed better.
6. Write what you would like to leave for future generations, and write advice you have on environmental management for future generations.

Safety considerations: N/A

Processing activities:

- Create a coat of arms "gallery" and have the group go on a tour. Have members display and discuss their personalized coat of arms.
- Discuss and expand on the issues that are identified as concerns for the community.
- Vote on which issue to focus on for a group project.

Environmental Coat of Arms



Habitat Game

Adapted from Project Wild, Elementary Activity Guide

Topic: Habitat

Learning outcomes:

- To explore the components that makes a healthy habitat.
- To understand how those components are interdependent.

Materials needed: None

Time: 30 minutes

Instructions:

1. Explain to members that the scientific name for a home is habitat; this includes food, water, shelter, and space. If any of these are missing, the habitat is no longer suitable.
2. Members will number off one to four and go into one of the four corners of the playing field.
3. Assign group one as food, group two as water, group three as shelter, group four as space.
4. Make a circle alternating members from groups one through four until everyone is in the circle standing shoulder to shoulder.
5. Ask members to take one step in and turn to their right, resulting in a tight circle with each member facing the back of the member in front of them.
6. Instruct the members to put their hands on the shoulders of the person in front of them, and on the count of three, sit on the knees of the person behind them.
7. Reminding members that food, water, shelter, and space are all in arrangement.
8. Use different examples to remove elements and remove one group from the circle: drought, city construction, pollution, and disease. The group will not be able to complete the task without all of the groups.

Safety considerations: Make sure members are feeling comfortable in the intimate environment this activity creates.

Processing prompts:

- What did you think of this activity? What was it like for you to be in the circle when it worked? What about when it did not work?
- How did this activity represent a healthy habitat?
- What happens to a habitat if one or more of the components are lost?

Worms and Soil

Adapted from Project Wild, Elementary Activity Guide

Topic: Relationships

Learning outcomes:

- To explore the value of vegetable and animal material in soil.
- To appreciate the original form of "recycling" and why it is such an important and common natural concept.

Materials needed: Enough soil from the same location to fill three boxes, earthworms, and kitchen scraps (orange peels, apple cores, eggshells, etc.).

Time: 2 hours for set up and 20 minutes of observation time per week for six weeks.

Instructions:

1. Observe the soil.
2. Pour water through the soil and observe its porosity - look for signs of life, insects, and organic material.
3. Divide the soil into three containers:

    - The first will be the control sample.
    - Add kitchen scraps to the second sample.
    - The third sample will be for kitchen scraps and earthworms.

4. Add kitchen scraps to the second sample.
5. Add kitchen scraps and worms to the third sample.
6. Once a week, for six weeks, repeat the process of adding kitchen scraps to the two samples.
7. Add water to the second and third samples once a week.
8. Every week, record the changes that are occurring in the boxes, and discuss them at the end of the six-week observation period.

Safety considerations: N/A

Processing prompts (after several weeks have gone by):

- What major changes have taken place in each of the three boxes? Why do you think that is?
- What is the value of having vegetable matter in the soil?
- What role do the earthworms play? What do they contribute?
- What ways can we all help to make sure our soils are healthy?

Oil Spill

Adapted from Project Wild, Elementary Activity Guide

Topic: Environmental awareness

Learning outcome:

- To discover the effects of an oil spill on sea birds.

Materials needed: Cooking oil, shallow container, eye dropper, magnifying lens, natural feathers, liquid detergent, hard boiled eggs, and nature journals (optional).

Time: 1.5 hours

Instructions:

1. Explain to the group that an oil spill provides dramatic evidence of environmental impact to wildlife.
2. Each group adds a dropper full of oil into the shallow pan of water and observes the interaction of the two.
3. Place three eggs into a container of oil, peel one after five minutes, 15 minutes, and 30 minutes - what are the differences?
4. Observe the feather through the magnifier and sketch what you see, soak the feather in oil for five minutes and then wash with liquid detergent, look through the magnifier again and compare it to your original sketch. This can be done in their nature journals.

Safety considerations: N/A

Processing prompts:

- What happened when you added the oil to the water? What do you think would happen when water and oil mix in the ocean?
- What happened to the eggs? What would happen to eggs and nests exposed to oil in the wild? What would happen to the baby birds?
- How did the oil change the feather? How would that affect the birds?

Town Hall Meeting

Adapted from Project Wild, Elementary Activity Guide

Topic: Environmental awareness

Learning outcomes:

- To consider the impact of land use on social and ecological issues.
- To appreciate the challenges that land managers face in regards to, political, economic, and environmental pressures, as well as user conflicts.
- To explore personal values and beliefs through role-playing.

Materials needed: Copy of role descriptions cards, and a room set up like a town hall meeting.

Time: 3 hours

Instructions:

1. Explain to the group the following background information:

   Land use decisions affecting wildlife are a common issue when highway developments are being proposed. The following is an imaginary conflict that corresponds to real life dilemmas.

   Happy Valley is a grain farming community in the middle of the Canadian prairies. It has a small town of 5000 that acts as the trade centre of the area. A new highway is proposed to connect two major urban centres to the east and west of the valley. It will provide 200 new jobs during the period of construction. However, the highway route is proposed to cross a large marsh. The marsh is to be drained and the unused portion of the marsh will be converted into pasture for landowners.

   The marsh provides hunting for local residents and tourists. It is also the spawning area for pike and pickerel for the Happy River. In the spring and fall, migratory waterfowl uses the area with many other species of birds sighted in the area, including the endangered whooping crane. Two trappers obtain their winter livelihood from the marsh, which also provides the secondary sewage treatment for the town, and acts as a reservoir for underground water flow to many landowners' wells.

   Based on the concern of citizens, the Town Council is holding a meeting to determine the points of view of local residents. Experts will be allowed to present information, and local residents will vote on one of three options:

   - To proceed with the marsh drainage.
   - To compromise by allowing the highway to be built as long as the marsh is retained.
   - To refuse the highway development.

2. Twelve members will be assigned (or volunteer) the roles on the description cards.

3. The rest of the members will have roles such as news reporters, outside experts, concerned citizens etc. These members may ask questions of people at the hearing. They can be required to write letters to the editor or one of the councilors in support of a particular point of view, write a news article about the meeting, prepare technical reports as researchers, etc.
4. To set the stage for the town hall meeting, have each of the 12 members read their role description cards. The other members should select their role. They may write their own.
5. Members should then be given time to prepare their presentations. Members should be encouraged to be creative when developing their presentations and questions.
6. The day of the meeting, the Town Councilor is to run the meeting. It is up to him or her to maintain order. This person must recognize all members before they speak. All members should have the opportunity to present and be questioned. After all of the testimonies, are given questions are asked and statements are made, the local residents will vote.

After the hearing and vote, discuss the following questions:

- What are some things we have learned about land use decision-making?
- What factors influence land use decision-making and planning?
- What differences and similarities were there between how decisions were made in this activity and how they happen in our community? Other areas? Other parts of the world?
- What responsibilities do we as citizens have in helping to make land use decisions?
- Why are land use decisions and land use planning important for people, wildlife, and the environment?

Safety considerations: N/A

Additional processing prompts:

- What was it like to role-play different perspectives? What was it like to debate on behalf of an idea?
- Did you agree with the perspective you had to represent?

Role Descriptions

Highway Engineer You have worked in highway construction for the past 40 years and you do not understand the new concern for environmental issues. Your approach is to build straight, safe roads with as little cost to the taxpayer as possible.	**President of the Chamber of Commerce** This is your tenth year as president. You own a grocery store in Happy Valley. Your biggest concern is the weak business climate in the community. The Chamber recently hired Brown & Brown, a business-consulting firm, to evaluate the retail potential of Happy Valley. Their findings indicate that the business community has overbuilt. Your profits and those of your fellow merchants have been declining. You see this new road and the tourists it would attract, as a blessing for your business.
Local Merchant and Duck Hunter You are a 50-year-old person and you own a furniture store. You are also a duck hunter. You recognize the increase in business to the town with the new highway, but you know you will lose your duck hunting opportunities. You would have to drive another 50 km to a different duck hunting area.	**Local President of the Naturalist Society** You represent over 200 active Naturalist Society members, and you are the Director of the annual bird count competition. You have a list of 15 rare bird species found in the Happy Valley. You are 40 years old and work in construction. You may be able to profit in the highway construction.
Local Councilor You are the third generation to run the family ranch, and you are proud to tell people that your grandfather was one of the first to settle in this area. You resent the increase in population, and although you are involved in community affairs, you resent individuals who do not share your values. Last fall, you had hunters trespassing onto your property, but you would rather have the waterfowl in the spring and fall.	**Hunter** You are a 55-year-old person and an avid hunter and fisherperson. You have four sons and hunting has always been an important family activity. You are an influential member of Ducks Unlimited. The proposed marsh for drainage contains one of the best duck hunting areas close to Happy Valley that was enhanced by Ducks Unlimited ten years ago.

Landowner You are a 60-year-old retired businessperson. You want to sell your land, move to Victoria, BC and live happily ever after. You want cash, and your asking price is very reasonable. You own 50 hectares of prime marsh to be drained.	**Biologist** You are 25, a new biologist in the area and unaware of the extent of your responsibility to prevent habitat destruction. You passionately oppose the drainage of the marsh, and point out the values of wildlife to the community. There has not been an adequate fish survey conducted on the marsh and river, but you know the declining fish population in the river is due to a lack of spawning sites.
Chief Engineer You are 50 years old and an avid supporter of the highway proposal, including the marsh drainage. You are not an outdoor enthusiast but your spouse is active in bird watching. While your training in water management is very limited, you are personally concerned about the lowering of the water table in the community and recognize that drainage may be the key factor.	**President of the Local Fishing and Hunting Association** You are 30 years old and have just been elected President of the Association. You feel you have to defend wildlife interests. The cost of gas is high and the Association doesn't want to have a long distance to drive in order to hunt. You would like to open a sporting store.
Local Trappers You are both in your 60's. You both own small farms near the marsh and make a portion of your income from trapping on the marsh during the winter season. You provide a free service to other landowners by trapping nuisance animals.	**Local Trappers** You are both in your 60's. You both own small farms near the marsh and make a portion of your income from trapping on the marsh during the winter season. You provide a free service to other landowners by trapping nuisance animals.

Values

Adapted from Project Wild, Elementary Activity Guide

Topic: Environmental awareness

Learning outcome:

- To explore personal values and beliefs in regards to environmental ethics and issues.

Materials needed: Copy of the dilemma cards.

Time: 1 hour

Instructions:

1. Explain to the group the following background information:

   This activity is designed to give members an opportunity to examine their own values and beliefs as they relate to wildlife and other elements of the environment. The intent of the activity is not to prescribe right and wrong answers. The purpose of this activity is to provide members an opportunity to come to their own judgments about what they think are the most responsible and appropriate actions to take in situations affecting wildlife and the environment.

2. The leader should copy and cut the dilemma cards. Other dilemma cards can be written that are more specific to problems in your local area. Members could also be involved in the creation of more dilemma cards, with each member responsible for one card. Dilemmas can be left entirely open-ended, with no options suggested for consideration.
3. Divide the group into teams of four, and give each team a stack of dilemma cards.
4. The first member draws a card from the top of the stack. The member studies the situation and decides what he or she would do.
5. When the member is ready (typically in less than two minutes), the member reads the dilemma aloud to the rest of the group. The member gives the decision he or she has chosen, and briefly describes the reason why. In turn, each of the other members of the group is invited to comment on the dilemma and what he or she would do in the situation. The discussion should take about five minutes.
6. The card is returned to the bottom of the stack, and another round begins with a new member choosing a dilemma card.

Safety considerations: N/A

Processing prompts:

- What were some of the hardest issues for you to decide on?
- What was it like to have your ideas challenged?
- Were you able to learn from other people's perspectives? Did you change your ideas because of their input?
- Do you feel you have good understanding of your own environmental values?

Dilemma Cards

You are a farmer. You have recently studied some different farming practices than what you currently do on your farm. One of these practices is to leave the edge of your farming area for wildlife and organic pest control. Although this technique may improve your long-term benefits, it may reduce your short-term profits. You are struggling to pay your taxes and to keep up with your expenses. Should you: • Sell your farm. • Continue to study farming practices but not make any changes for now. • Try a few methods on some of your land and compare the results with other similar areas on your land. • Other ideas?	You are the President of a large corporation. You are interested in pollution control and have had a team of staff members evaluating the pollution your plant is creating. The team reports to you that the plant is barely within the legal requirements and that the plant is polluting the community. To add the equipment to reduce pollution would cause you to fire 50 employees. Should you: • Add the equipment and fire the employees. • Not add the equipment. • Wait a few years to see if the cost of the equipment will decrease. • Hire an engineering firm to provide further recommendations. • Other ideas?
You are a member of a country club that has recently voted to build a pheasant reserve for members to hunt. You are not a hunter, you think that hunting is only okay to do in the wild, and you are opposed to this initiative. Should you: • Maintain your membership and choose not to voice your concern. • Maintain your membership and speak out against the pheasant reserve. • End your membership. • Other ideas?	You are fishing in a secluded lake and have caught five fish during your first day on the lake. On the second day, you caught seven fish all of which were bigger than the one's you caught on the first day. The law allows you to have 12 fish in your possession. Should you: • Continue to fish and keep them all. • Throw back the smaller fish you caught the day before back. • Have some of the fish for lunch. • Stop fishing for the day. • Other ideas?

You are the head of a team of people who are in charge of selecting the best course of action to preserve the buffalo. Some of the team members would like you to authorize the capturing of buffalo. The buffalo would then be sent to zoos to mate in captivity. Should you: • Leave the buffalo in their natural environment. • Capture the Buffalo and send them to zoos. • Launch an education campaign about endangered species. • Other ideas?	You are having a picnic with your family. You see another family leaving from their own picnic. This family has left garbage all over the park. Should you: • Ask the family to pick up their garbage. • Wait for the family to leave and pick up their garbage yourself. • Leave the garbage where it is. • Other ideas?
You are on a hike with one of your friends and you spot a Bald Eagle perched high on a tree. Before you know it, your friend shoots the eagle. One hour later, a park ranger approaches you about an eagle that has been shot illegally and asks you if you know anything about it. Should you: • Deny that you know anything about it. • Tell the ranger that your friend was the one who shot the eagle. • Say nothing at the time, but make an anonymous phone call later reporting your friend. • Other ideas?	You are a judge. You are hearing a case where a man has been charged for shooting a deer out of hunting season. He has been unemployed for a year and is using the meat to feed his family. Should you: • Punish him for his crime. • Give him a small fine. • Release him with a warning. • Other ideas?

Outdoor Survival: An Introduction

In this section it is recommended that members take a certified first-aid course based on their age. Each member who participates in outdoor activities should have this training. Members will also learn what to put in a first-aid kit and survival kit to take with them on adventures. Survival skills like shelter and fire building are fun to do on their own, or to build and use on an outdoor adventure.

Outdoor Survival

Junior

Intermediate

Senior

First-Aid Courses

Topic: First-aid

Learning outcome:

- To prevent and manage injury.

Materials needed: Provided by a first-aid course facilitator.

Time: 4 to 16 hours

Instructions:

Contact the Canadian Red Cross, St. John's Ambulance or similar agency to set up a first-aid course for your 4-H members. Make sure to book a course that is appropriate for the age of your group.

Safety considerations: N/A

Processing prompts:

- What is the most important thing you learned in the course?
- What did you like about the course?
- What would you change about the course?
- How will you remember the course material?

Safety Colouring Sheets

Adapted from the Canadian Red Cross

Topic: First-aid

Learning outcome:

- To spot the hazards on a beach and around the campsite.

Materials needed: Colouring sheets for each member, and crayons or markers.

Time: 30 minutes

Instructions:

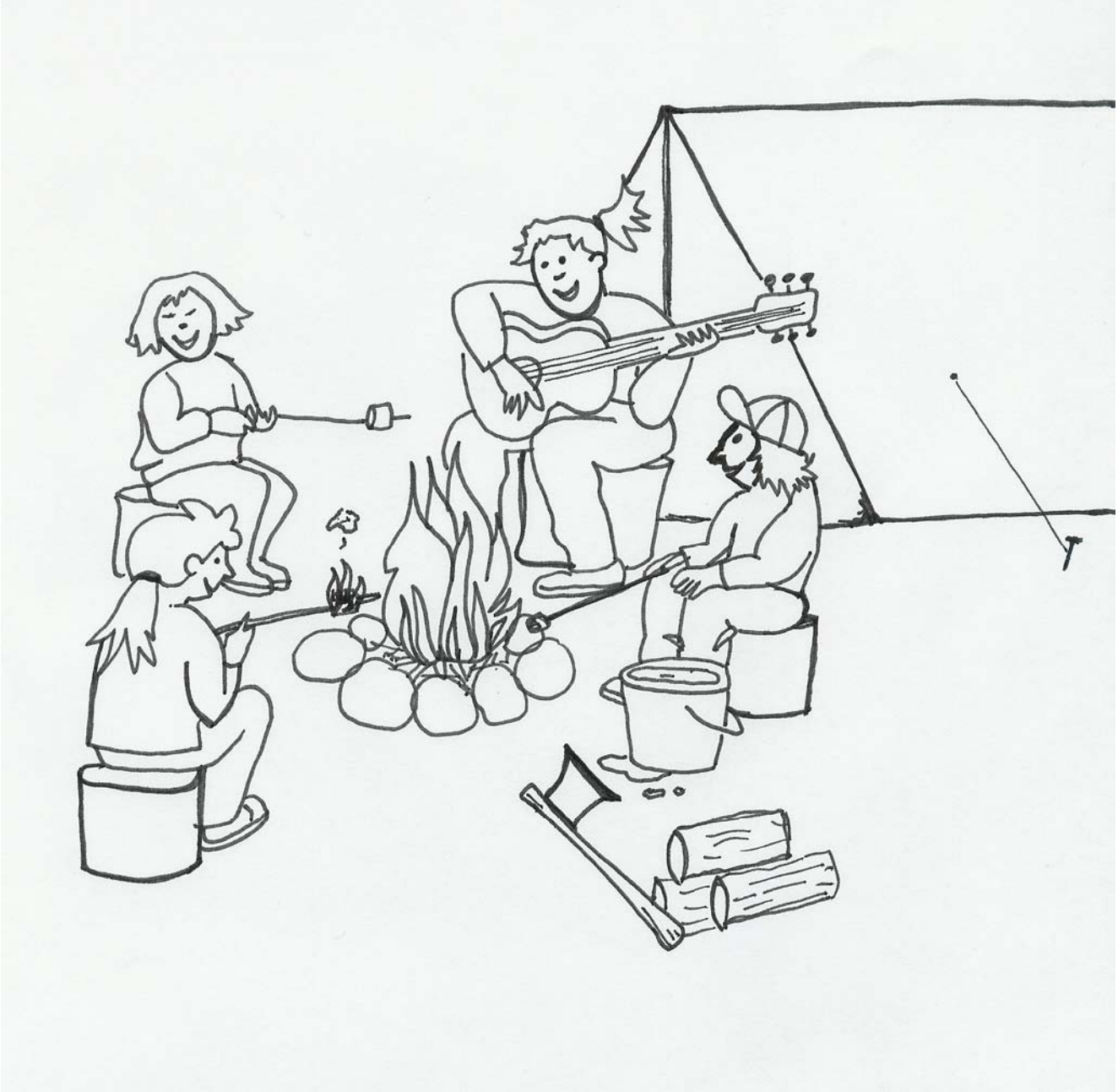
1. Members colour their picture.
2. While colouring, they should circle the activities in the picture that are unsafe.
3. Members can share their picture with the group.

Safety considerations: N/A

Processing prompts:

- Share the drawings with the group.
- Did everyone circle the same things?
- What can you do to keep safe at the beach and at the campsite?

Spot the Dangers!



Spot the Dangers!

Outdoor Survival

Intermediate

Senior

Make a First-Aid Kit

Topic: First-aid

Learning outcome:

- To create a first-aid kit for each member.

Materials needed: Items on the supply list, waterproof first-aid kit containers (enough for each member).

Time: 1 hour

Supply list for one first-aid kit:

- 5 pairs vinyl gloves
- 1 pocket CPR mask
- 1 bar of soap
- Scissors
- Paper and pencil
- 5 large non-stick dressings
- 5 large absorbent dressings
- 5 medium non-stick dressings
- 5 medium absorbent dressings
- 1 role medical tape
- Various band-aids

Instructions:

1. Each member makes a first aid kit using the supply list.
2. In partners, the members demonstrate how to use each of the supplies using a demonstration first aid kit.

Safety considerations: Members must have had proper first-aid training for the supplies to be used effectively.

Processing prompts:

- Have you ever used a first-aid kit?
- Where should you keep first-aid kits?

Make a Survival/Repair Kit

Topic: Survival skills

Learning outcome:

- To create a survival/repair kit for each member.

Materials needed: Items on the supply list, survival/repair kit containers (enough for each member).

Time: 1 hour

Supply list for one survival/repair kit:

- Fire starter
- Matches
- Flag tape
- Whistle
- Flashlight
- Multi tool
- Duct tape
- Safety pins
- Candles
- Needle and thread
- Tarp
- Toque
- Compass
- Water purification method
- Mirror
- Cord

Instructions:

1. Each member makes a survival/repair kit using the supply list.
2. In partners, the members demonstrate how to use each of the supplies using a demonstration survival/repair kit.

Safety considerations: N/A

Processing prompts:

- How would you use each of these items for survival purposes?
- Have you ever used a survival kit?
- When should you carry a survival kit?
- Where should you keep survival kits?
- What else do you have that can help you in an emergency?

Outdoor Survival

Junior

Intermediate

Senior

Make a Lean-To

Adapted from Drake & Love, The Kids Cottage Book

Topic: Survival skills

Learning outcome:

- To build a shelter.

Materials needed: One long ridgepole, two trees as end poles, and lots of dead branches covered with mosses.

Time: 3 hours

Instructions:

1. Select an area where the wind blows across the two end trees not through them.
2. Attach the ridgepole between the two end poles (trees) four to six feet high.
3. Construct the lean-to like a large hockey net with sticks lined up leaning against the ridgepole. Cover with lichen covered branches and sticks with leaves.
4. Pad the ground with mosses and lichen.

Safety considerations: Junior members will need additional leader supervision when placing the pole.

Processing prompts:

- Would you like to sleep in your shelter?
- Have you every slept outside without a tent? Would you like to?
- Why do people build shelters?
- Did you discover a different way to build a shelter?

Outdoor Survival

Junior

Intermediate

Senior

Tarp Shelter

Topic: Survival skills

Learning outcome:

- To build a shelter.

Materials needed: A tarp or sheet of plastic, rope or cord, and tent pegs.

Time: 20 minutes

Instructions:

1. Tie the rope between two trees. The trees should be at least two or three metres apart, and the rope should be tied as high as possible (at least shoulder height).
2. Drape the tarp over the rope so that sides on either side of the rope are of equal size.
3. Large rocks can be used to hold down the corners of the tarp. If rocks are not available, you can use tent pegs.

Safety considerations: N/A

Processing prompts:

- Would you like to sleep in your shelter?
- Have you every slept outside without a tent? Would you like to?
- How long do you think you could live in a tarp shelter?

Outdoor Survival

Junior

Intermediate

Senior

Debris Shelter

Topic: Survival skills

Learning outcome:

- To build a shelter.

Materials needed: A long pole, branches, deadwood, and other debris.

Time: 1 hour

Instructions:

This is an excellent shelter to build if you are in an area with a lot of branches and leaves that have fallen from trees. The fall season is a great time to try this shelter.

1. Lean a long pole or branch against a tree.
2. Branches and deadwood are leaned against the long branch to form a sloped roof.
3. The shelter is then covered with leaves, grass, sod, pine boughs or anything else you can find on the ground. Pile these materials as thick as possible. The thicker it is, the more waterproof the shelter will be.

Safety considerations: It is important not to have a fire close to this shelter, as it will be very flammable with all of the dried leaves and debris.

Processing prompts:

- Would you like to sleep in your shelter?
- Have you every slept outside without a tent? Would you like to?
- What other creatures build shelters?

Outdoor Survival

Junior

Intermediate

Senior

How Many Steps in a Mile?

Topic: Navigation

Learning outcome:

- To estimate travel time.

Materials needed: Marking sticks, and a tape measure.

Time: 1 hour

Instructions:

1. Explain the following to your group:

   Do you know why there are 5280 feet to a mile? The answer may surprise you. The work mile comes form the Latin term *mille passus. Milles Passus* is the term used to describe 1000 paces, or double steps taken by roman soldiers. During Caesar's time, roman soldiers were able to walk 5280 feet in 1000 pace.

   In Canada, we use the metric system where one mile equals 1.6 kilometres. One kilometre is equal to 1000 metres.

   The length of an adults pace is roughly 5 feet (1.5 m). This can help to estimate travel time.

2. To measure your own double step (pace), mark a starting place and measure 200 feet (61 m) from it, mark this distance.
3. Walk from the starting place to the 200 feet (61 m) mark and back, while counting your double steps/paces (every time your left foot moves). Then divide the distance covered (400 feet or 122 m) by the number of paces, this will give you an average pace distance.

Safety considerations: N/A

Processing prompts:

- What was your pace distance?
- Was everyone's pace the same?

Processing activity:

- Have the group estimate travel time to a particular area. Have the group count their paces while traveling to this area. Did you estimate your travel time correctly?

Outdoor Survival

Junior

Intermediate

Senior

Water Purification Taste Test

Adapted from www.natureskills.com

Topic: Survival skills

Learning outcome:

- To determine the best tasting purified water.

Materials needed: Stove, pot, chemical method of purification (iodine, pristine), water filter, chart, and marker for recording results.

Time: 1 hour

Instructions:

1. Explain the following background information to your group:

   Water in the wilderness often contains harmful microorganisms, bacteria and parasites that can cause a variety of ailments, such as giardia, dysentery, hepatitis, and hookworms. Luckily, there are many simple and diverse methods to treat water to make it safe for consumption.

2. Demonstrate for the group the following methods of water purification. Once all of the methods have been demonstrated, have the group taste test the different waters. Have a vote with the group to see which is the most popular method of water purification.

   Boiling

   The simplest method to purify water is to boil it. You need to bring the water to a full, rolling boil for at least five minutes to be safe, with some experts recommending an even longer time. The down side to boiling your drinking water is that it removes the oxygen and the water ends up tasting flat. You can improve its quality by pouring it back and forth between two containers to put oxygen back in, or simply shake it up.

   Chemical Purifiers

   There are also several chemical purifiers on the market. Iodine comes in either liquid form, (which can be messy), or tablet form. Pristine is a two-step chemical purifier. Be sure to follow the directions carefully. Water treated with iodine will have a darker colour and a bit of an unpleasant flavor.

Water Filters

A third method of treatment is to filter water. Most work by pushing the water through a charcoal or ceramic filter. When using this type of filter it is important to not cross contaminate the hoses. Keep the clean hose in a separate plastic bag so it never touches the contaminated hose. The plus side, no flat or funky flavour. Water filters are also good for when the water is murky or dirty, as they will remove this as well. The drawback is that the sediment or tannins that you are filtering out will quickly clog up the filter. Some can be cleaned, with others you need to buy a replacement filter. Like all technical equipment, cost and breakage are things to be considered.

Safety considerations: N/A

Processing prompts:

- What are some of the benefits and drawbacks of each method?
- Have you used any of these methods before, any others?
- Why do we have to treat water today? Did they have to in the past?

North by Northeast

Adapted from the www.ultimatecampresource.com

Topic: Navigation

Learning outcome:

- To learn about navigation.

Materials needed: Compass.

Time: 30 minutes

Instructions:

1. The leader gathers the group together. Using the compass, the members learn how to determine which direction is north. Someone from the group is asked to select an object that is directly north (e.g. a tree, or a doorstep, or a post).
2. The group then decides on an object that lies directly south, one that lies directly east, and one that lies directly west.
3. Everyone assembles in the centre of the playing area. The leader calls out one of "North", "South", "East" or "West", and everyone runs to touch the object that lies in that direction. The last person to touch the object is eliminated.
4. After playing a few rounds of the game, play can stop, and objects for the intercardinal points (Northeast, Northwest, Southeast, Southwest) can be added. Everyone can begin the game again.

Safety considerations: N/A

Processing prompts:

- Why is it important to know about compass directions?
- Who uses compasses?
- What else can you do to find your way?

The Giant Compass Game

Topic: Navigation

Learning outcome:

- To learn the compass bearing points

Materials needed: An open space, and a compass.

Time: 30 minutes

Special note: Refer to the How Many Steps in a Mile? activity for information about paces.

Instructions:

1. Explain the compass directions and paces to members.
2. Mark each direction (N, S, E, W) with a pylon 25m away from the centre (compass rose), which is also marked, with a pylon.
3. The members all begin at the compass rose. The leader will close their eyes and call a direction and a certain number of paces.
4. The members follow the call. If the caller opens their eyes, after counting the number of paces, and the members are still moving, they must go back to the compass rose (centre). (This activity is similar to What Time is it Mr. Wolf?).
5. A 4-H member can replace the role of the leader once all of the members understand the activity.

Safety considerations: N/A

Processing prompts:

- Why is it important to know about compass directions?
- Who uses compasses?
- What else can you do to find your way?

Outdoor Survival

Junior

Intermediate

Senior

Orienteering Scavenger Hunt

Topic: Navigation

Learning outcome:

- To follow directions relating to navigation.

Materials needed: Instruction clues at each destination, compasses, maps, and whistles.

Time: 1 to 3 hours

Special note: This activity would be a great follow-up to the North by Northeast activity, the Giant Compass Game, the Telling Time Natures Way activity, the Compass Direction Game, Contour Line Activity, or the Blindfold Compass Walk.

Instructions:

1. Set up a scavenger hunt prior to members arriving by placing consecutive clues at specific locations (be sure to keep a copy for yourself). Include clues based on their navigation knowledge.
2. Examples include:
    - Take 50 paces north.
    - Follow the compass bearing NE to the big tree.
    - Go to the southeast corner of the building.
    - Take the road until it turns west.
    - Run ½ a mile SW in the field.
    - Walk one mile SSE along the road.
    - Go to the valley as marked on the map.
    - Find the highest elevation on the map.
    - Follow the contour line to the lake.
3. Send the group on their way.

Safety considerations: Young members should always be with a leader. If the area is spread out, the members can use whistles to signal trouble.

Processing prompts:

- How did you feel not knowing where you were going next?
- Have you felt that way before?
- Did everyone end up at the same place?
- Did your team work well together?
- Did you feel confident in the directions you were following?
- What was the most challenging part of this activity?

Outdoor Survival

Intermediate

Senior

Telling Time Natures Way

Topic: Survival skills

Learning outcome:

- To use nature to tell the time

Materials needed: A field guide to wildflowers and cue cards.

Time: 1 hour

Instructions:

1. Write the following time cues on cue cards.

    - Marigold flowers open at 7 am and close at 7 pm
    - Blue chicory closes at noon
    - Pickerelweed closes at noon
    - White water lily shuts at 4 pm
    - Deer flies come out after 9 pm
    - Horseflies came out after 2 pm
    - Mosquitoes after 8 pm

2. Have members carry the cue cards while they are on a hiking or canoe trip.
3. The group can stop and discuss the cues as they are identified.

Safety considerations: N/A

Processing prompts:

- Have you noticed any other ways nature tells time?
- What are some ways your bodies tell you what time it is?

Outdoor Survival

Intermediate

Senior

Homemade Fire Starters

Adapted from Drake & Love, The Kids Campfire Book

Topic: Survival skills

Learning outcome:

- To make a fire starter.

Materials needed: A clean and empty can for each member, crayons or old candles, a cooking pot, a pot holder, newspaper, string, scissors, empty cardboard egg cartons, and sawdust or wood chips.

Instructions:

1. Have members fill their can half full with crayons or candles.
2. Half fill the cooking pot with water.
3. Place the cans in the pot - the can should not float. If they are floating, take some water out of the pot.
4. Put the pot on an element on low, and wait until the wax has melted.
5. Let the wax cool.
6. There are two types of fire starters that can be made with the melted wax:

Fire Parcels

1. Roll sheets of newspaper lengthways tightly. Tie bows of string every 4 or 5 cm along the length. Leave a length of string from the bow.
2. Cut the newspaper rolls between each string to form little packets of paper.
3. Hold the string ties and dip the packets of paper into the melted wax.
4. Let cool.

Fire Cups

1. Cut the lid off of the egg carton. Place a piece of string in each cup of the egg carton, leaving one end of the string dangling over the edge of the carton.
2. Fill the cups with sawdust or wood chips.
3. Pour the melted wax into each cup. Let cool.
4. Separate the cups of the egg carton.

Safety considerations: Make sure that the melted wax is being handled properly to avoid burns.

Processing prompts:

- Can you start a fire without a fire starter?
- When would you want to use a fire starter?

Outdoor Survival

Intermediate

Senior

Building a Fire

Adapted from Drake & Love, The Kids Cottage Book

Topic: Survival skills

Learning outcome:

- To build a fire safely.

Materials needed: A forest to find wood, a safe place to have a fire, and water to put out the fire.

Time: 2 hours

Instructions:

1. Find a safe place to build a fire. Look for a flat rocky area with no overhanging branches. Make three wood piles with the following three sizes of wood:

Tinder	Material that will flare up when touched with a match Pine needles or birch bark fallen from a tree or little twigs
Kindling	Sticks that are the width of a pencil and shorter than your arm
Fuel	Logs the width or your arm, remember find them on the ground not on living trees

2. Make a small pile of tinder in the fire area and make a kindling teepee over the tinder. Light the tinder with a match and when the kindling is burning add the fuel.

Safety considerations: Leaders should carefully supervise this activity and make sure all fires are out before leaving the area.

Processing prompts:

- What are campfires used for today?
- What were they used for in the past?
- How do you feel around a campfire?

Outdoor Survival

Intermediate

Compass Direction Game

Topic: Survival skills

Learning outcome:

- To learn the directions of the compass.

Materials needed: Pylons.

Time: 30 minutes

Instructions:

1. Make a large circle on the ground 50m in diameter marking N, NE, E, SE, S, SW, W, and NW with the pylons.
2. Members stand in the circle facing the same direction. The caller says a direction and all members must turn to face that direction. The last one to do so this is eliminated.
3. Play until all the members are eliminated.

Variation: This game can be made more complicated by using blindfolds.

Safety considerations: N/A

Processing prompts:

- Why is it important to know about compass directions?
- Who uses compasses?
- What else can you do to find your way?
- Did you get frustrated during the activity? Why?
- Was this activity challenging? Why?

Survival Knots

Adapted from Drake & Love, The Kids Cottage Book

Topic: Survival skills

Learning outcome:

- To tie useful knots

Materials needed: Two pieces of rope for each member, and copies of the knot tying instructions.

Time: 3 hours

Instructions:

Assist members in mastering the knots outlined in the following pages.

Variation: This is a great activity to do while on a camping trip, especially if it's raining. Cuddle up in a sleeping bag and practice tying knots!

Safety considerations: N/A

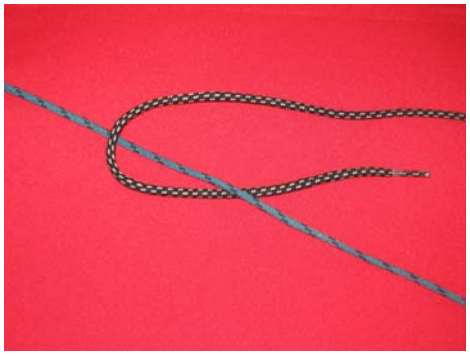
Processing prompts:

- When do you use knots?
- Why is it important to know how to tie knots you don't use every day?
- Where do you think knots originated? Why were they used?

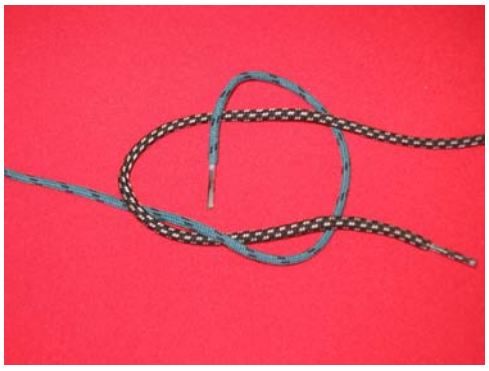
Sheet Bend

The sheet bend is used to join two ropes together.

1. Lie one rope straight (blue rope). Loop the other rope (black rope) around the blue rope.



2. Take the loose end of the blue rope and pass it under the two free ends of the black rope, back under itself and out through the loop formed by the black rope.

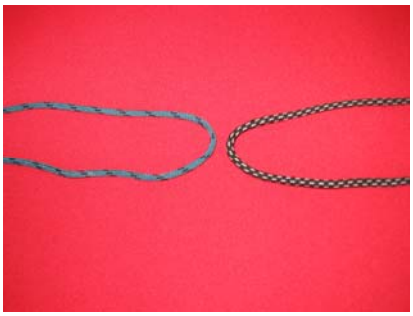


3. Pull gently on the two loose black ropes and the loose ends of the blue rope to tighten.

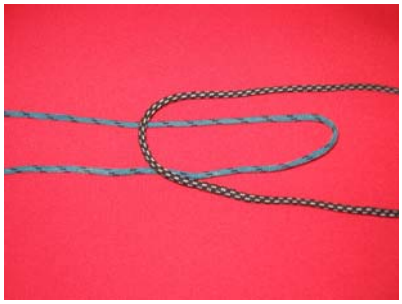
Square Knot

The square knot is similar to the sheet bend and is also used to attach two ropes together.

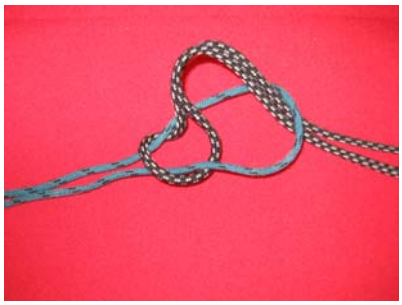
1. Form a loop with each of the two ropes.



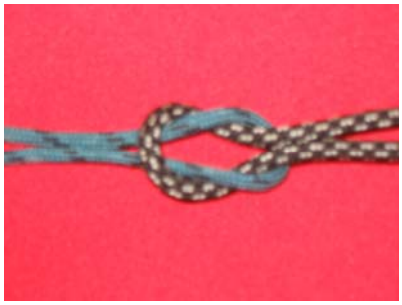
2. Slip the left-hand loop below and through the right-hand loop.



3. Bring the loose ends of the right-hand loop through the left-hand loop.



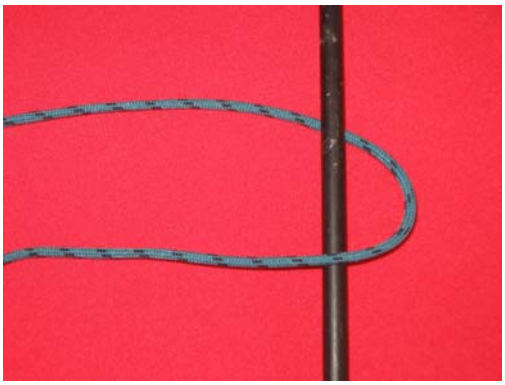
4. Pull the loose ends to tighten.



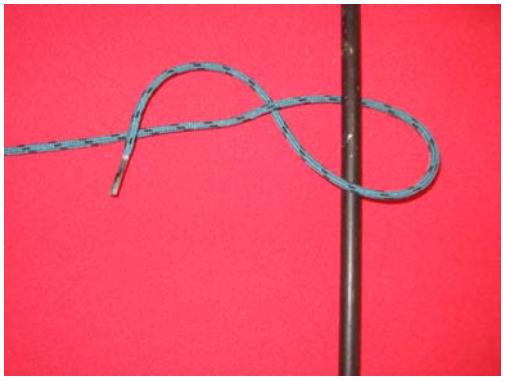
Half Hitch

The half hitch is most commonly used to tie a boat to a dock.

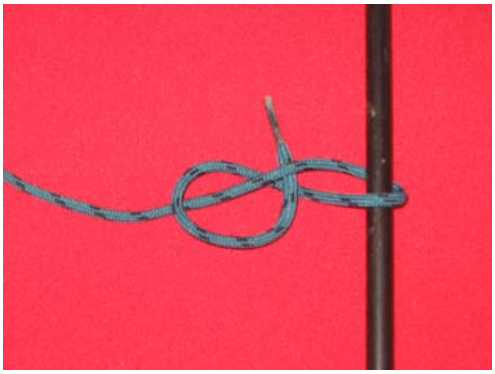
1. Wrap the rope around a post.



2. Pass the working end of the rope under the rope and loop it back over the rope attached to the boat.



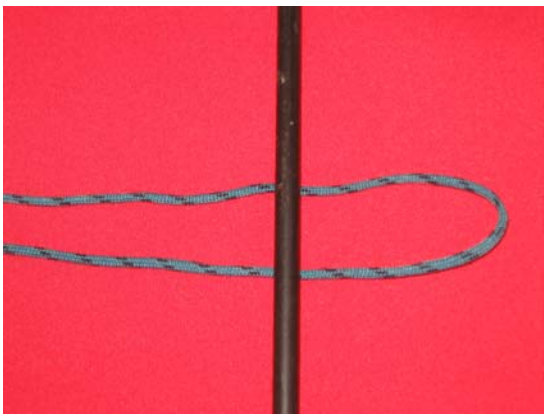
3. Pass the working end under the boat line again and loop back towards the post. Pull tight.



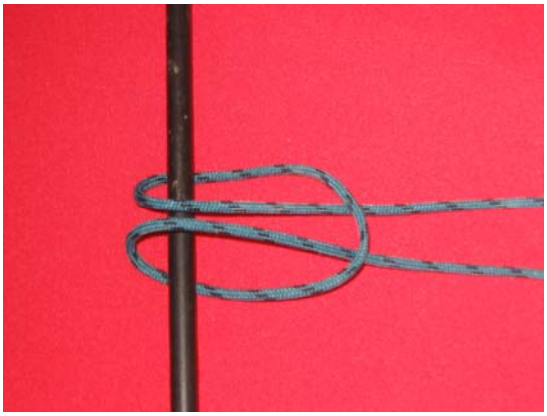
Loop Knot

The loop knot is a variation of a slipknot.

1. Fold the rope in half. Pass the loop end around an object.

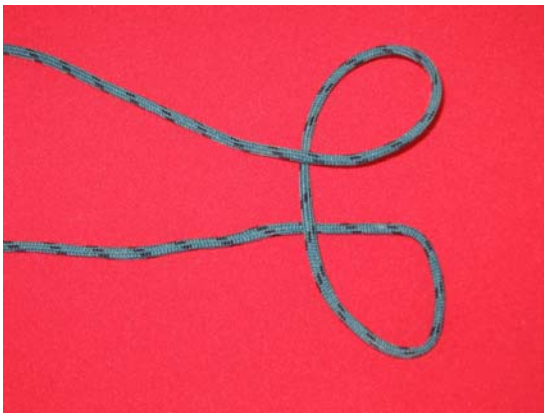


2. Pass the two loose ends of the rope through the loop and pull tight around the object.

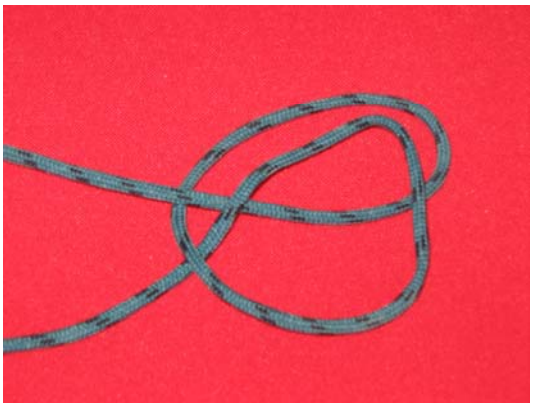


Clove Hitch

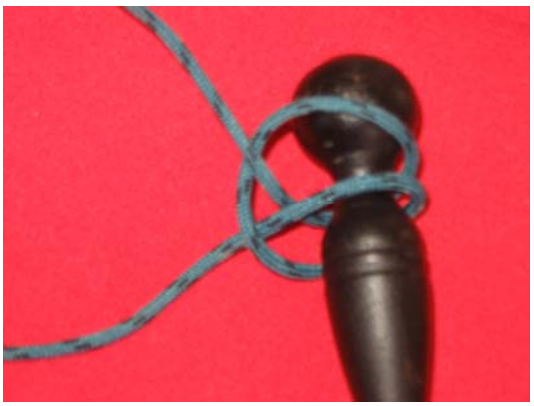
1. Form two loops as shown. The right-hand loop has the rope going in front of the loop, and the left-hand loop has the rope going towards the back.



2. Overlap the two loops, slipping the right-hand loop behind the left-hand loop.



3. Slip the overlapped loops onto a post or other object and pull to tighten.



Contour Line Activity

Topic: Navigation

Learning outcome:

- To understand how contour lines show shape elevation on a map.

Materials needed: Large pot of water, light coloured fist sized rock, black permanent marker, topographical map with changes in elevation, notebook and paper (or nature journal).

Time: 2 hours

Instructions:

1. Explain to the group the following:

   Contour lines are the thin brown lines running over the surface of the map. They connect areas of equal elevation. The numbers along the lines represent the elevation, or the number of metres above mean sea level. The vertical distance between any two contour lines is 10, 20 or 50 metres. This contour interval will be recorded on the map border.

2. As a group, look at the map and point out where there is:

   - Steep rise in elevation (contours close together)
   - Gentle rise (contour lines farther apart)
   - Cliff (contours come together)
   - Valleys (U shape in the contours)
   - Ridges (V shape in the contours)

3. To make 3D contour lines, take the rock and dip the first cm in the pot of water and trace the water line with the marker. Do the same at the second cm, and so on, until the rock has lines on it at every cm.
4. Put the rock on a flat surface and look at it from the top. This is how the rock would show changes in shape and elevation on a topographical map.
5. Try this activity with several shapes of rocks.

Safety considerations: N/A

Processing prompts:

- How does elevation affect navigation?
- How does elevation affect wilderness travel?
- When you look at a map now, do you see the land you are looking at in a different way?

Outdoor Survival

Intermediate

Senior

How Long Will it Take to Walk a Kilometre?

Topic: Navigation

Learning outcome:

- To estimate travel time.

Materials needed: Watch, an open space with varied topography.

Time: 2 hours

Instructions:

This guide will help your group estimate how many minutes it will take to travel one kilometre. See how close your group can match the following timelines.

	Highway	Open Field	Open Wood	Mountain and Forest
Walking	24 minutes	40 minutes	48 minutes	64 minutes
Running	16 minutes	21 minutes	26 minutes	35 minutes

Safety considerations: Leaders should be able to supervise members throughout the activity.

Processing prompts:

- What else affects travel time?
- If group members travel at different speeds, what should you do?
- Did you match the times on the travel guide?

Blindfold Compass Walk

Topic: Navigation

Learning outcome:

- To follow a compass bearing.

Materials needed: Orienteering compasses, and a large hat for each member.

Time: 1.5 hours

Instructions:

1. To follow a compass bearing to a physical land feature (i.e. a hill top) set your compass in the direction of the hilltop. Turn the dial until the red north part of the compass needle points to the letter N on the rim of the housing. Proceed straight ahead in the direction of the travel arrow points. You do not need to remember the compass degrees, because it is already set.
2. To test yourself, go into an open space and set your compass bearing at any point you wish.
3. Wearing a large hat pulled down over your eyes, so that you can only see your compass at chest level not in front of you, turn around three times, orient yourself, and follow your bearing 50 paces. See if you are on line with your feature.

Safety considerations: N/A

Processing prompts:

- How do you feel when you cannot see your destination?
- Was this activity challenging?
- When would you use this skill again?

Adventures in the Wilderness: An Introduction

Before going on an outdoor adventure with your 4-H members, it is important to plan ahead, know what to bring, and understand the area and how to protect it using low impact camping principles.

Plan Ahead

Bring a map on all outdoor adventures. The map will show you directions and point out woods, cliffs, lakes, portages, and marked trails. Plan stops for eating, exploring, and resting. When you have decided what route you are going to take, tell someone where you are going and how long you will be gone. Then, if you fail to return in a reasonable time, they will start looking for you. If you know other people who have completed the route before you, ask them for advice and tips about the route and the area.

What to Bring

For day trips bring along:

- Water and snacks
- A first-aid kit
- A watch
- A garbage bag
- Sunscreen
- A hat(s)
- A raincoat(s)
- A pencil and notebook (or nature journal)
- Insect repellant
- Matches
- Ask members to wear several light layers, socks, and comfortable runners or hiking boots.

For overnight trips bring along everything you would for a day trip plus:

- A camp stove and pot set
- Tent(s)
- Sleeping bag(s)
- Enough food for the group
- Other necessary equipment such as canoes, lifejackets, and paddles.

Low Impact Camping Principles

Prior to going on an outdoor adventure, it is important for you and your group to know and understand the following low impact camping principles. If your group discusses this prior to going on a trip, it will be easier to reinforce while on the trip.

1. Plan ahead and prepare.

   Prior to arriving at the trailhead it is important to learn about the environment including the weather patterns, the wildlife, and use patterns. Keeping the party size small, bringing appropriate low impact equipment, and avoiding human to animal contact are important issues to keep in mind.

2. Travel and camp on durable surfaces.

   Avoid trails and soils where the ground is wet. Walking on wet trails causes trail deterioration, creation of undesired additional trails, and deterioration of grazing areas. Stay on the trails that are provided by hiking in a single file.

3. Dispose of waste properly.

   Human waste should be disposed of in the most appropriate manner. Ideally, human waste should be disposed of in a cat hole at least 15 centimetres in depth, and at least 100 metres away from water. All toilet paper should be packed out or burned.

4. Leave what you find.

   Always leave the natural environment as you found it. Unless it's garbage, leave it behind.

5. Minimize campfire impact.

   When making a fire in the wilderness, attempt to leave the site of the fire as natural and pleasant looking as you found it. Secondly, minimize the effects of wood gathering. Burn only dead wood.

6. Respect wildlife.

   Avoid approaching animals. It is okay to observe from a distance, but do not disturb them. Humans should never feed animals in the wild. When animals become accustomed to eating human food their behaviour often changes causing problems for wilderness campers.

7. Be considerate of other visitors.

   Attempt to keep the noise level of your group to a minimum.

Stream Hike

Adapted from National Recreation and Park Association, Creative Recreation Programming Handbook: Ideas and Year-Round Activities for Children and Youth

Topic: Hiking

Learning outcome:

- To observe stream life.
- To gain an appreciation of ecosystems.

Materials needed: A shallow stream, shoes that can be worn in the stream, a change of clothes, the leader should have a field guide to stream life, and a first aid kit.

Time: 1.5 hours

Instructions:

1. Take members to a stream. Discuss where the water comes from, what lives in it and how long it travels.
2. Begin hiking through stream/along the bed, stopping along the way to discuss what you have seen.

Safety considerations: Leaders should be familiar with the area and carry proper supplies for the length of the journey.

Processing prompts:

- What lives in this environment?
- What is your impact on their environment?
- How do people use streams?

Hike to Dig for Clay

Adapted from National Recreation and Park Association, Creative Recreation Programming Handbook: Ideas and Year-Round Activities for Children and Youth

Topic: Hiking

Learning outcome:

- To find natural clay, prepare and sculpt with it.
- To be creative.

Materials needed: Small shovels and pails, window screens, a first-aid kit, paint and brushes (optional).

Time: 3 hours

Instructions:

1. Hike along the banks of a river or stream where clay is likely to be found. When clay is found, collect it in the pails (it may have sticks and debris in it, that's okay).
2. When you have found enough clay for everyone press the clay through the window screens to clean out the sticks and debris.
3. You can use the clay to sculpt different things. Allow your group to be creative.
4. Dry the clay creations in the sun.
5. Once they have dried, members can paint their creations.

Safety considerations: Leaders should be familiar with the area and carry proper supplies for the length of the journey.

Processing prompts:

- How has clay been used in the past?
- How is it used today?
- What is clay made of?
- What other ways can clay be used?

Senses Hike

Adapted from National Recreation and Park Association, Creative Recreation Programming Handbook: Ideas and Year-Round Activities for Children and Youth

Topic: Hiking

Learning outcome:

- To use listening and touch in the outdoors.

Materials needed: A safe outdoor space, blindfolds, notebooks and pencils (or nature journals), and a first aid kit.

Time: 1.5 hours

Instructions:

1. After a short hike, have members sit in an area with a blindfold on.
2. Ask them to listen to their surroundings, and feel their surroundings for two or more minutes.
3. After the two or more minutes are up, members will remove their blindfolds and write a list of what they heard and felt.
4. Members can try this a second time, and record their results.
5. Were there differences between the two recordings, differences in the group?

Safety considerations: Leaders should make sure that all members are comfortable wearing blindfolds for the two-minute time span. Leaders can explain to members that if they are uncomfortable during the activity, they can remove the blindfold at any time. Leaders should be familiar with the area and carry proper supplies for the length of the journey.

Processing prompts:

- Do people who can't hear experience nature differently? What do you think that is like?
- Do people who can't see experience nature differently? What do you think that is like?
- Did you hear or feel anything that you did not notice during our hike?
- How big of an impact does the sense of smell have on us in the outdoors?

Night Hike

Topic: Hiking

Learning outcome:

- To experience your surroundings in silence and in the dark.

Materials needed: Flashlights and whistles for each member, and a first aid kit.

Time: 3 hours

Special note: Ask the members to wear dark clothing and sturdy shoes for this activity.

Instructions:

1. Begin by explaining that on the night hike there must be no speaking.
2. Members will walk single file and will stay close together.
3. Hike for up to two hours.
4. Once the hike is complete, find a spot where members will feel comfortable and where there is light. Allow time for members' eyes to adjust.
5. Discuss the experience using the processing prompts.

Safety considerations: Leaders must be familiar with the area. Each member should have a whistle and a flashlight. The whistle can be blown to signal trouble. The flashlight can be used if members are feeling uncomfortable in the dark.

Processing prompts:

- How is the area different in the dark?
- How did you feel being asked not to speak?
- Did you notice any wildlife during the hike? Explain.
- What would this hike be like if you were by yourself?

Canoeing: An Introduction

The following section about canoeing will help 4-H leaders teach the skill of canoeing to their members. It is recommended that leaders get certified with Paddle Canada, or find a certified instructor in your local area to teach this skill.

If you plan on going on a multi-day canoe trip, please refer to Adventures in the Wilderness: An Introduction, to learn about how to plan ahead and what to bring, as well as low impact camping.

Canoe and Paddle Parts Relay

Topic: Canoeing

Learning outcome:

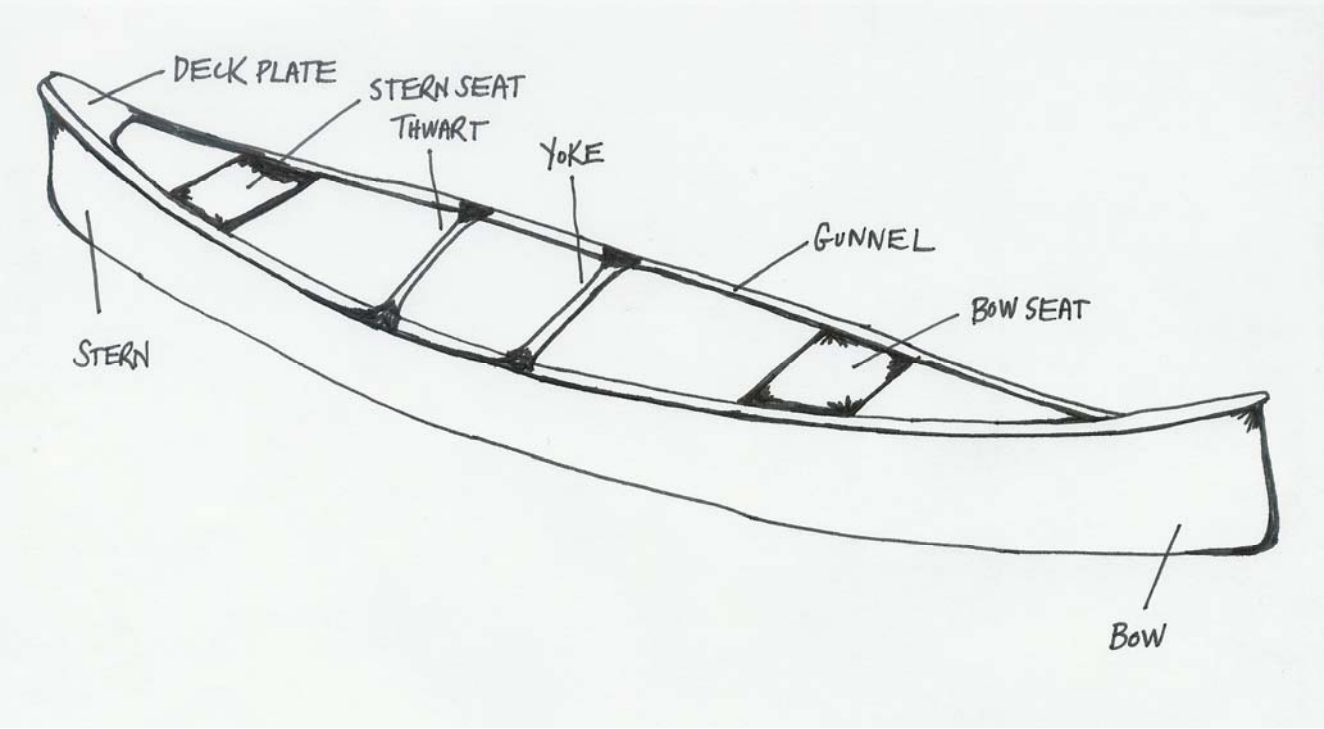
- To learn the parts of the canoe and the paddle.

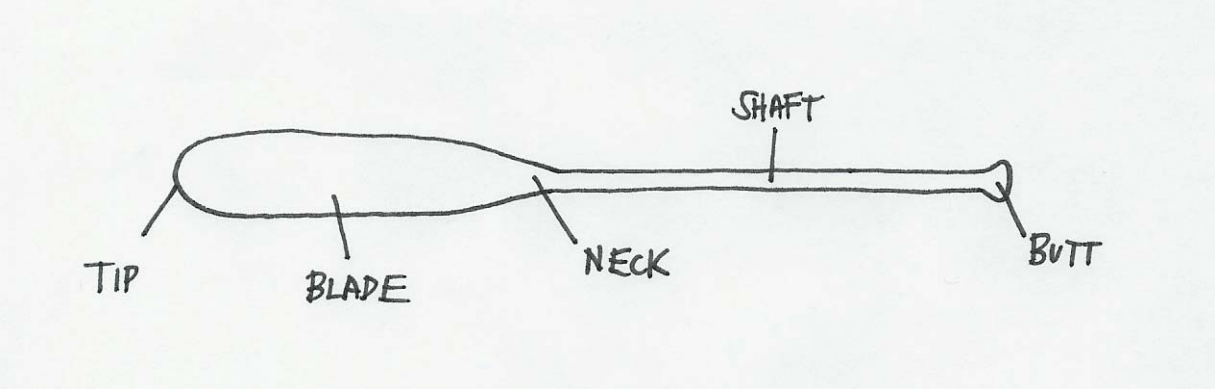
Materials needed: Canoe, paddle, and an open space.

Time: 30 minutes

Instructions:

Teach the members the parts of the canoe and the paddle.





1. Members make two lines 25m from the canoe and paddle.
2. The leader calls a part of the canoe or paddle. The first members in each line run to the canoe and paddle and touch the part that was called.
3. They run back to their team and tag the next person in line.
4. The leader says the next part and the next two go. This continues until all members have had a turn.

Safety considerations: Play on even ground with no obstructions.

Processing prompts:

- How do you remember all of the parts?
- Why is it important to know the parts of the equipment?
- Did your group work as a team to help each other in the race?
- How did you work well together? Explain.

Canoeing Skills

Adapted from Drake & Love, the Kids Cottage Book

Topic: Canoeing

Learning outcomes:

- To learn about the sport of canoeing.
- To practice the skill of canoeing.

Materials needed:

What to wear

Each member will need to wear a life jacket (PFD) certified by the Canadian Department of Transportation (DOT). Paddlers should also wear shoes at all times in case they have to get out on a rocky shore, and don't forget hats and sunscreen.

What to bring

Members will need a paddle that is no taller than their chin. Each boat needs to have an extra paddle, a bailer, a whistle or horn, and painters; the buoyant rope tied to the tip of the boat. If you are paddling after dusk you should bring a flashlight that is visible from 360 degrees called a beacon. Bring a first-aid kit as well.

Time: 1 hour minimum, unlimited paddling time.

Instructions:

Teach your members the following skills:

<u>Getting In and Out of the Boat</u>

1. You must first decide who will be in the bow and who will be in the stern.
2. If you are launching from a dock:

   The bow person steps in to the center of the boat while the stern person holds and steadies the boat by holding the gunnels. The bow person lays their paddle across the gunnels and slides it along while keeping their weight low, moving toward their seat. When the bow person is seated they can hold the dock while the stern person gets in. To get out of the canoe, repeat the same process in reverse order.

3. If you are launching from a beach:

   The canoe is placed perpendicular to the beach with the bow end in the water. The stern person steadies the boat by sitting on the deck plate. The bow person steps into the centre of the boat at the stern end, and lays their paddle across the gunnels. They then slide their paddle along while keeping their weight low, moving toward their seat. When the bow person is seated and their paddle is in the ready position, the stern person puts one foot in the boat, and pushes off the beach. To get out of the canoe, repeat the same process in reverse order.

Canoe Strokes

1. Paddlers should always be paddling on opposite sides of the boat.
2. Moving forward – the forward stroke.

   Grip the paddle with one hand on the butt and one hand on the neck close to the blade. Put the paddle in the water in front of you alongside the boat close to you knee; pull the paddle back to your hip in a straight line. This will catch the water on the blade of your paddle and move you forward. Bring your paddle out of the water and swing it toward the bow. Repeat the stroke at a steady pace to propel your canoe. The person sitting in the bow does this stroke most of the time.

3. Moving forward – the J stroke.

   This stroke is used to keep the boat traveling in a straight line while moving forward. It is done from the stern of the boat. The J stroke begins exactly like the forward stroke, however, instead of removing the paddle from the water at the hip, the paddler moves the blade out away from the canoe so it appears they have traced a J in the water. The stern person may do the J stroke every time or every few strokes depending on the bow paddler's abilities, the wind, and water conditions.

4. Turning the boat – the draw.

   This stoke is used to turn the boat in the direction that the bow paddler is paddling on. This can be done by the stern person or by both the stern and bow paddlers to turn quickly. Extend the paddle out so the blade is parallel to the gunwale and the blade enters the water at a 90° angle. Slip the blade into the water and pull toward the gunnel, remove the paddle from the water and repeat the stroke until the boat is facing the direction you would like to go.

5. Turning the boat – the push away or the pry.

   This stoke is used to turn the boat opposite to the direction that the bow paddler is paddling on. This can be done by the stern person or by both the stern and bow paddlers to turn quickly. The paddle starts with the blade in the water parallel and next to the boat. Move the blade away from the boat keeping it parallel. Remove the paddle from the water and repeat the stroke until the boat is facing the direction you would like to go.

Safety considerations: Make sure you have all the items listed in the materials needed section above. Make sure all members are comfortable with the skills progression before going onto the water.

Processing prompts:

- Did you enjoy learning the skill of canoeing?
- What was the most difficult part? Easiest part?
- How did other members in your canoe support you?
- Did your canoe members communicate effectively? How?
- Did you feel safe in the canoe?
- What were canoes used for in the past?

Canoeing Games

Topic: Canoeing

Learning outcomes:

- To practice the skill of canoeing.

Materials needed: Lifejackets and paddles for each member, canoes, an extra paddle, bailer, whistle, and painters for each canoe, a ball, and a first-aid kit.

Time: 1 hour

Instructions:

Follow the Leader

Playing a game of follow the leader with all of the canoes is a great way for members to practice using the different paddling strokes. The 4-H leader's canoe can be the first to lead. Once members are more comfortable, members can take turns being the lead canoe.

Canoe Tag

A game of tag can be played on the water using a ball. Canoe teams can tag one another by landing the ball in other members' canoes.

Safety considerations: Make sure you have all the items listed in the materials needed section above. Make sure all members are comfortable in the canoe before playing the games.

Processing prompts:

- Did you enjoy learning the skill of canoeing?
- What was the most difficult part? Easiest part?
- How did other members in your canoe support you?
- Did your canoe members communicate effectively? How?
- Did you feel safe in the canoe?

Breakfast Bake

Adapted from Drake & Love, The Kids Cottage Book

Topic: Outdoor cooking

Learning outcome:

- To make a tasty breakfast that will energize the group.

Materials needed: Knife, orange, eggs, and fork (one for each member), tongs (optional), matches, kindling and firewood, and water to put out the fire.

Time: 15 minutes

Special note: Refer to the Building a Fire activity for more information about fire building.

Instructions:

1. Cut the orange in half and eat it like a grapefruit.
2. When the orange rind is empty, crack an egg into it.
3. Use two sticks (or tongs) to lower the orange rind into the coals of a low fire and cook for five minutes, enjoy.

Safety considerations: Adult supervision is necessary when using a fire to cook.

Processing prompts:

- Do you like cooking over a fire?
- Would you like to do it all the time? What would that be like?

Hole Potato

Adapted from Drake & Love, The Kids Cottage Book

Topic: Outdoor cooking

Learning outcome:

- To cook a potato in the outdoors.

Materials needed: Potato (one for each member), knife, tongs, butter, salt and pepper, matches, kindling and firewood, and water to put out the fire.

Time: 1.5 hours

Special note: Refer to the Building a Fire activity for more information about fire building.

Instructions:

1. Dig a small pit before you start the fire.
2. Wash the potatoes and poke them with the knife before putting them in the pit.
3. Cover the potato with ashes from a previous fire.
4. Build a fire on top of the potatoes. They will take about an hour to cook.
5. Let the fire die down and remove the potatoes with the tongs.
6. Serve the potatoes with butter and salt and pepper.

Variation: You can also make a variety of meals using the same cooking method:

- Cut up potatoes, sprinkle with onion soup mix. Add some water and butter. Wrap in foil and bake.
- Peel carrots and slice. Add butter, salt and pepper. Wrap in foil and bake.
- Core and peel an apple. Sprinkle with brown sugar and cinnamon. Add some butter. Wrap in foil and bake.

Safety considerations: The potatoes will be very hot when they are removed from the fire.

Processing prompts:

- Do you like cooking over a fire?
- Would you like to do it all the time? What would it be like?

Winter Fun: An Introduction

When doing any winter activity, it is important to dress for the weather. You and your group should be prepared to keep all parts of the body warm at all times. Layering is a good technique to use when dressing for the winter weather.

First, your group members should have a **base layer**. This should be a lightweight, long sleeved shirt and pant layer (long underwear). Ideally this layer should be made of a moisture-wicking fabric such as Polypropylene. Recommend to your group that they avoid wearing cotton. This fabric keeps the body very cold when it gets wet.

Second, your members will need a **middle layer**. This layer should provide warmth. Fleece or wool is the best fabric for this layer. Make sure each person has both a top and bottom middle layer.

Third, all members should be wearing an **outer layer**. This layer should be wind and/or rain proof. Nylon or Gore-tex fabrics are the best for this outer layer. This will keep your group members warm and dry.

Finally, all members should be wearing a toque, neck warmer, and warm mittens. To avoid getting cold feet, recommend to your group that they wear wool socks, and wear winter boots that fit properly. If their boots are too tight, feet will get cold!

Winter Fun!

Junior

Intermediate

Senior

Snowshoeing

Topic: Snowshoeing

Learning outcomes:

- To learn about the sport of snowshoeing.
- To practice the skill of snowshoeing.

Materials needed: A pair of snowshoes for each member.

Time: 1 to 3 hours

Instructions:

1. Contact a local school or sports store to rent snowshoes for your group. Before borrowing/renting the snowshoes, take into account the "Right Fit" section below.
2. Find an appropriate location for snowshoeing. Most provincial parks have snowshoe trails. Contact your local provincial/national park for trail information.
3. Educate your group on the following information:

   History

   Snowshoes have been around longer than cross country skis. The earlier versions of snowshoes were made of wood with rawhide-lace latticework inside the wooden frame. The bindings were made of leather. They were much longer, heavier, and bulkier than the newer versions of snowshoes. This type of snowshoe was developed for traveling and hauling loads in snow.

The newer versions of snowshoes are much smaller, lighter, stronger, and much easier to use. The newer snowshoes are made of aluminum, which is lighter in weight and more durable than the old wood frames.

Snowshoe Terminology

- Bindings: Attaches the snowshoe to your boot.
- Frames: Made of wood or metal. The frame is what defines the snowshoes shape and size.
- Decking: The decking is what allows the snowshoe to "float" on the snow. It can be made of lacing or a solid material.
- Flotation: This term means to stay on top of the snow.
- Traction: The newer snowshoes come with toe and/or heel crampon claws that allow for better traction on icy surfaces and hard snow.

4. Next, teach your members how to properly fit a snowshoe:

   The Right Fit

   To properly size a snowshoe you must consider three factors:

   - Weight: The more you weigh, the bigger your snowshoe should be to help you stay "floating".
   - Type of snow: Light, dry snow requires a bigger snowshoe to keep the snowshoer from sinking. Heavy, wet snow requires a smaller snowshoe.
   - Where you are snowshoeing: If you are snowshoeing on steep terrain, you should use smaller snowshoes for good traction. If you are traveling on flat ground, you should use larger snowshoes for good flotation. For long distances, the lighter the snowshoe, the better.

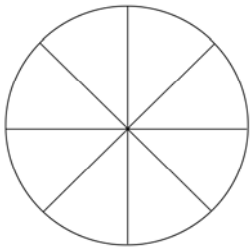
5. Once all of the members are wearing snowshoes, take the group on a short hike to warm up.
6. Once the group is warm, discuss the following points:

   Breaking the Trail and Staying Safe

   - When snowshoeing, take turns leading. It gets very tiring breaking the trail.
   - When leading the group, the leader must take into consideration the pace of the slowest member of the group (everyone should move as fast as the slowest person).
   - When leading the group, the leader should make sure that their steps are short enough so that everyone in the group can follow in the same trail. This is called the guide step.
   - As a follower in the group, try to stay in the leader's footsteps as much as possible. This will conserve energy and maintains a well-defined trail for those behind you.
   - As the leader, make sure the group is taking breaks when necessary to drink water or have a snack.

7. Before heading out onto the trail, teach the group the following game to get their energy flowing.

Create a circle pattern in a large area of snow by breaking a trail. Add spokes to the circle pattern.



Once the pattern is created, play a game of tag with the group. The members must stay on the trail pattern as they play.

8. Head out on the trail!

Safety considerations: Make sure all of your members are dressed appropriately for the weather – refer to Winter Fun: An Introduction.

Processing prompts:

- How did you feel when you were snowshoeing? Tired, cold, excited…
- Did you see any wildlife or signs of wildlife on the trail?
- What was your favourite part of our snowshoeing adventure?
- How did the group support you while we were snowshoeing?
- Would you use this skill again? Why or why not?

Cross-Country Skiing

Topic: Cross-country skiing

Learning outcomes:

- To wear skis that are the proper size.
- To learn to wax skis properly.
- To ski uphill and downhill.
- To practice the skill of cross-country skiing.

Materials needed: Skis, boots and poles for each member, a variety of ski wax, soccer ball, and pinnies (optional).

Time: 1 to 3 hours

Special note: You can rent or perhaps borrow skis from a local school or ski/sport shop.

Instructions:

Fitting the Skis

1. Each member needs to find a pair of skis that meet their wrists when their arms are stretched over their head.
2. For the poles, they should go no higher than your armpits.
3. The boots should fit comfortably like a pair of shoes.

Waxing the Skis

1. Ski wax comes in different temperature ranges. Visit a local sports store or specialty ski shop to purchase a variety of waxes that address all temperatures that would occur in your local area.
2. Once you have a variety of wax, check the temperature. Any thermometer on the wall of a building will most likely be reading above what the real temperature is. It is easier to put on a colder wax in the morning, and then move to a warmer wax as the day gets warmer.
3. Before waxing the skis, it's important to scrape off any existing wax that is on the skis. Once this is done, apply new wax. When waxing skis you want to apply wax onto the kick zone only. The kick zone is under the binding at the centre of the ski. To find out exactly where it is, follow these instructions:

    a. Place both skis parallel to each other about eight cm apart.
    b. Stand on the skis with your toes at the binding.
    c. Keep your weight evenly distributed between both skis and stand erect during the measurement.

d. Have a second person (a helper) with a strip of paper.
e. Have the helper slide the paper under the ski where your toes are.
f. If the paper will not slide under check that you are evenly distributing your weight on the skis. Otherwise the ski is too soft for you.
g. Now the helper should slide the paper forward and mark where the edge of the paper stops. This is the front of the kick zone.
h. Now the helper should slide the paper back and mark where the edge of the paper stops. This is the back of the kick zone.

4. While skiing, it is always a good idea to take extra wax – one for warmer, and one for colder weather. If you feel like your wax isn't right while skiing, dab some more wax onto the first layer you applied earlier.

Cross-Country Skiing Games

To feel the gliding motion of skiing you can play one or both of the following games:

One Ski Soccer

Have each member put on one ski. They will play a game of soccer using one foot to push their other foot (the one with the ski). You can wear coloured pinnies to identify the two teams. Have the group switch their skis to their other foot halfway through the game.

One Ski Relays

Have each member put on one ski. Set up a relay race with two or more teams. Members will race one another using only one ski. They will use their booted foot to push their foot with the ski.

Skiing on a Groomed Trail

1. Find a cross-country ski trail in your local area.
2. You can explain to your group that cross-country skiing is similar to an exaggerated walking movement – big arm movements with long sliding steps. To begin, you plant your left ski pole in the snow on the outside of your left ski and slide your right ski forward. While pulling your left ski pole out of the snow, plant your right pole in, and slide your left ski forward.
3. Have the group continue to practice this movement until everyone feels more natural and comfortable.
4. Before heading out on the trail, talk to the group about staying together. Remind them that you should be able to see the person who is skiing in front of you and behind you. The group should always move as fast as the slowest person.
5. Head out on the trail!

Learning to Ski Up and Down Hills

When you reach a hill on the trail, explain the following techniques to your group:

Uphill

When climbing a hill, make sure to lean forward. Dig your poles into the snow and walk up the hill. If you begin to slide backwards, try walking with your tips pointing out and your heels pointing in to make a large V shape. If you are still sliding backwards, turn sideways and side step up the hill.

Downhill

When learning to ski down hills on cross-country skis, it's important to know how to do the snowplow. This skill will help you to slow down while going downhill. Point the tips of the skis slightly toward one another while you push down hard on the inside edges of your ski boots. This skill should be practiced until you can snowplow to a stop.

On small hills, skiers should keep their knees bent and lean forward slightly. Poles should be tucked in close to the person's side.

Safety considerations: Make sure all of your members are dressed appropriately for the weather – refer to Winter Fun: An Introduction. If you are going for a longer ski, make sure to bring water and snacks.

Processing prompts:

- How did you feel when you were skiing? Tired, cold, frustrated, excited…
- Did you see any wildlife or signs of wildlife on the trail?
- What was your favourite part of our skiing adventure?
- How did the group support you while we were skiing?
- Would you try this activity again?

Winter Fun!

Junior

Intermediate

Ice Charms

Adapted from Drake & Love, The Kids Winter Cottage Book

Topic: Winter activities

Learning outcomes:

- To do a fun winter activity.
- To be creative.

Materials needed: Shallow pie plates or other shallow containers, water, colourful yarn, evergreen branches, and wild winter berries.

Time: 20 minutes

Instructions:

1. Have members fill their shallow pie plate with water.
2. Have them circle the inside of each pan with a length of yarn so the yarn gets wet and sinks. Drape the ends of the yarn over the rim and out of the water.
3. Members can place evergreens (or other greenery) and berries into the yarn circle.
4. Put the pans outside and allow freezing on a flat surface.
5. When solid, pop the ice charms out of the pans and hang them.

Safety considerations: N/A

Processing prompts:

- Where will you hang your ice charm?
- Are you proud of what you created?

Fleece Mitts and/or Headband

Topic: Winter activities

Learning outcomes:

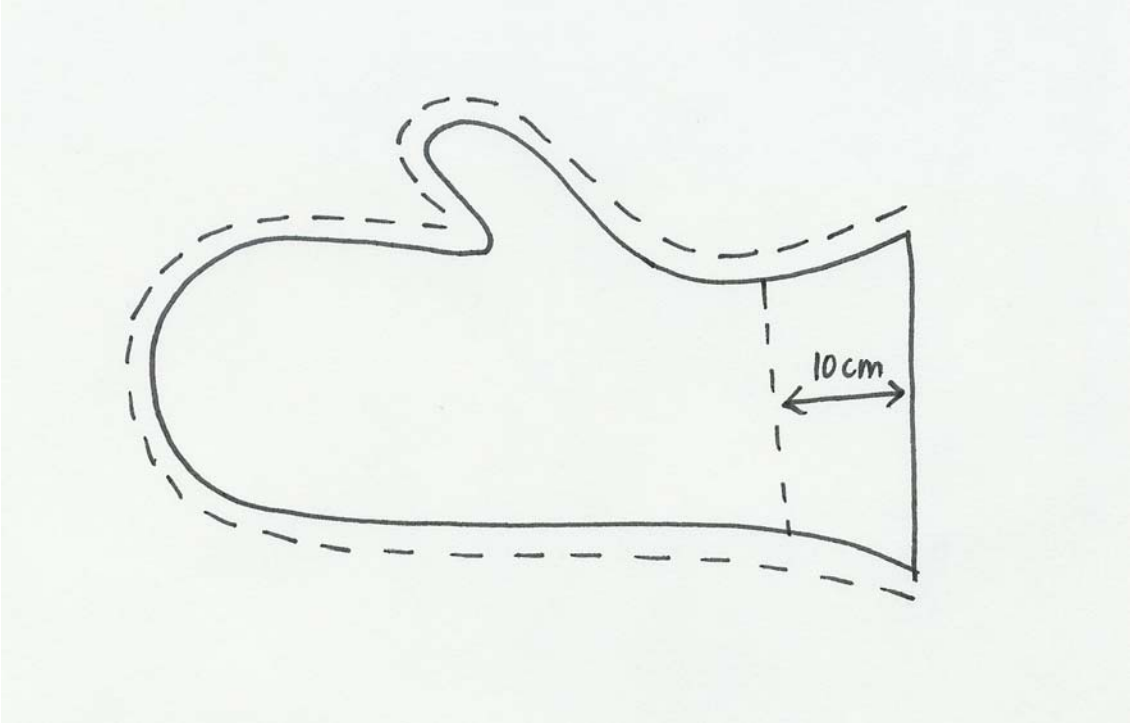
- To make outdoor clothing to keep warm.
- To be creative.

Materials needed: Paper, pencils, rulers, scissors, fleece, straight pins, needle and thread, and self-adhesive Velcro (headband only).

Time: 2 hours

Instructions for mitts:

1. To make a pattern, trace your hand on a piece of paper. Stop at the wrist.
2. To make a cuff, add 10 cm below the wrist. Make this part wider so that your hand will fit into the mitt.
3. Draw another line two cm from the original tracing. Cut out the shape along this line.



4. Fold a piece of fleece in half, with right sides together. Pin the pattern to the double layer of fleece and cut around the pattern.
5. Remove the pattern and pin the two pieces together.

6. Thread a needle and knot the thread. Use small stitches to sew around the outside of the mitts.
7. Turn the cuffs over about four cm and decorate if you'd like.

Instructions for headband:

1. Cut a piece of fleece 64 cm X 6 cm.
2. Cut two pieces of self-adhesive Velcro 6 cm long.
3. Stick the rough piece of Velcro to one end of the fleece.
4. Stick the soft piece of Velcro on the other side of the opposite end of the fleece.
5. Thread the needle and knot the thread. Sew around the outside edges of the Velcro to secure them in place.
6. Decorate if you'd like with buttons, fabric paint, or different colours of fleece.

Safety considerations: Make sure members are being careful with their sewing needles.

Processing prompts:

- Did you enjoy the process of creating your mitts/headband?
- Are you proud of what you created?
- Did you help others? Did others help you?

Ice Castles

Topic: Winter activities

Learning outcomes:

- To have fun outside (even when it's cold!).
- To be creative.
- To work as a team to accomplish a task.

Materials needed: Containers of all sizes, watering can, and food colouring

Time: 1 hour, plus time for water to freeze

Instructions:

1. Find as many containers as possible (yoghurt containers, margarine tubs, pots and pans).
2. Spread the containers somewhere outside (make sure it is below zero degrees).
3. Use a watering can to fill the containers with water.
4. Colour the water with food colouring if the group would like to make the castle colourful.
5. Allow the containers to freeze until solid.
6. Remove the ice shapes from their molds by squeezing the outside of the containers.
7. Use a little bit of snow to glue the pieces together to create an ice castle.

Safety considerations: Make sure members are dressed warmly so they can enjoy the process of making the ice castle – refer to Winter Fun: An Introduction.

Processing prompts:

- Are you happy with the castle you created?
- How did the group work together to accomplish this task?
- What role did you play in the group?

Winter Campfire

Topic: Winter camping

Learning outcomes:

- To build a fire when there is snow on the ground.

Materials needed: Different sizes of wood, and a fire starter – refer to Homemade Fire Starters activity.

Time: 1 hour

Instructions:

1. Collect three sizes of wood; tinder, kindling, and fuel – these are described in the Building a Fire activity.
2. Form a base for the fire by laying four or five whole logs side by side on the snow. Then, make a small pile of tinder on the logs. Make a kindling teepee over the tinder. Light the tinder with a match and when the kindling is burning add more fuel.
3. If you're having trouble lighting the fire, use one of the homemade fire starters.

Safety considerations: When winter camping, it is a good idea to bring some homemade fire starters with you. It is always a challenge to get a good fire going in the winter.

Processing prompts:

- Did you enjoy the process of making your fire? Was it easy or difficult? Why?
- Did you work together to build the fire?
- What role did you play?
- When and where would you use this skill again?

Building a Quinzee

Topic: Winter camping

Learning outcomes:

- To build a winter shelter.
- To experience sleeping in a winter shelter.

Materials needed: Lots of snow, shovels, and a tarp.

Time: 3 to 5 hours

Special note: Quinzees require a fair bit of work to complete so make sure the group starts well before dark. If built properly a quinzee will be much warmer to sleep in than a tent.

Instructions:

The quinzee hut is possible because temperature differences exist within the layers of snow. By mixing snow of different temperatures you create a sintering process that causes even powdered snow to harden.

1. For a quinzee with an inside diameter of 2 metres, mark off a circular area that is at least 3 metres in diameter (allowing for the walls).
2. Now mix up the snow within your circle to get it sintering. Start piling snow on top of this area by using snow that is from outside of the circle. As you shovel, alternate flipping the snow over so that it gets well mixed (one shovel full right side up, the next gets thrown on upside down...). Your pile should get to about 1.8 metres high.
3. Flatten off the top to give it a dome shape, but don't pack down the snow. Poke a couple dozen 30 - 45 cm long sticks through the top and sides of your snow pile. These will be your guides to wall thickness when you start digging it out.
4. Now wait to let the sintering process begin. Depending on the outside temperature it could take between one and three hours. The colder it is, the faster it will harden. Make yourself something hot to drink, cook dinner, or go on a short hike to pass the time and keep warm.
5. Now it's time to dig. You should be in waterproof clothes and someone else should help to move away the debris you shovel out. Trade off regularly, the person inside doing the digging has the toughest job. Start off by making a small opening at ground level. As you progress inwards, start slanting upwards so that the sleeping platform is slightly raised. This will allow the coldest air to flow down and out while you are sleeping. Keep hollowing out until you reach the ends of the sticks you poked through earlier. When finished the walls should be at least 30 - 45 cm thick, and you should have a dome shaped ceiling. Smooth the ceiling as much as possible to prevent dripping.

6. You will get a thin crust of ice build up on the inside, due to condensation, making the snow airtight. You will need to make, and keep clear, a ventilation hole in the ceiling. Also, don't shut the door up too snuggly. Allow some air to circulate through it. You can use a backpack as the door.
7. Scoop out a shelf or two on the inside wall for candles. Poke a stick part way through to suspend your candle lantern.
8. You may also want to make a windbreak out of snow around the entrance. This will keep brisk winds out as well as to help prevent drifting snow from burying your doorway. Just as a precaution you should keep your shovel or other digging utensil inside with you at night in case you have to excavate your way out in the morning.
9. It is also a good idea to bring along a small tarp or tent fly to cover the quinzee in case of wet rain or snow. Throwing tarps over the roof of your quinzee during a rainstorm will greatly increase its chances of making it through the night. Just make sure your ventilation hole is not obstructed.
10. A tarp or ground sheet is also required for the floor. Set this down and put your thermal pads and sleeping bags on top.

These shelters are perfect for two or three people. If you have more people in your group then you can build two adjoining quinzees with a small opening connecting them. There are many easier and quicker snow shelters that can be made for one individual.

Safety considerations: If you do decide to sleep in the quinzees, it is recommended that you have a nearby building that is heated. Without proper sleeping bags and clothing, sleeping in a quinzee can be a very cold experience. Allow members to start in the quinzee with the option of moving to an indoor space. You want to keep the experience positive and fun.

Processing prompts:

- What was it like to build a quinzee?
- Did your group work together effectively? How?
- Did you sleep in your quinzee? What was it like? Did you feel safe? Did you feel warm?
- Would you make a quinzee again someday?

Winter Fun!

Junior

Intermediate

Senior

Snow Taffy

Topic: Winter activities

Learning outcomes:

- To make a snack outside in the wintertime.

Materials needed: Clean snow, candy thermometer, maple syrup, a pot, camp stove or cook top, and a cake pan.

Time: 30 minutes

Instructions:

1. Pack the clean snow into the cake pan.
2. On a camp stove, or cook top heat the maple syrup in the pot. If it is producing too many bubbles, add a drop of vegetable oil into the boiling syrup.
3. Boil the syrup until it has reached the softball stage – this should be identified on the candy thermometer. Make sure to stir the syrup continuously to prevent burning. This should take about four minutes. Drip a little syrup into cold water – if it forms a hard thread that will bend but not break – it is ready!
4. Drizzle the syrup over the snow and eat with a spoon.

Variation: Pour the syrup in straight lines onto the snow and roll it up onto Popsicle sticks.

Safety considerations: The heating and pouring of the syrup should be closely supervised by a 4-H leader to avoid burns.

Processing prompts:

- What role did you play in the making of the snow taffy?
- Did you enjoy making snow taffy?

Winter Fun!

Junior

Intermediate

Senior

Winter Station Rotation

Topic: Winter activities

Learning outcome:

- To work together in small teams to accomplish a series of challenges.

Materials needed: One pair of snowshoes, pylons, bucket, ice cream scoops, a large spoon, and a hula-hoop.

Time: 2 hours

Instructions:

1. Divide the members into small groups of two or three.
2. The teams will move through a series of stations (other station ideas can be added to this list):

    - Each team member (one member at a time) must snowshoe around a designated course (this can be marked with the pylons),
    - Build a snowman – points can be awarded for size or creativity,
    - Fill a bucket with snow using an ice cream scoop – points can be awarded for the amount of snow in the bucket,
    - Make a snowball, the team must complete a relay while carrying the snowball on the spoon – points can be deducted each time the team drops their snowball,
    - Make snowballs, throw the snowballs through a hula-hoop – points can be awarded for every snowball that goes through the hoop.

3. Send each team to a different station.
4. The snowshoe station can be used as the "timing station" – the team that is at this station must accomplish the challenge – when they have completed the challenge, they will yell "STOP", and all of the other teams must stop what they are doing at their stations.
5. After completing each challenge, points will be awarded to the teams by a 4-H leader. Once the points are awarded, teams will move on to the next station.
6. Play should continue until all of the teams have completed all of the stations.

Processing prompts:

- Did your team work well together?
- Did any of the team members take on a leadership role?
- Which challenge was the most difficult? Why?

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