

# ECOSYSTEMS (ECO PAK CHALLENGE)

AN INSTANT MEETING FOR PATHFINDERS  
FROM THE BC PROGRAM COMMITTEE

The Eco Pak challenge was launched in 2006 to BC Girl Guide members in the form of an Eco Pak backpack and a resource booklet. If your district doesn't have one, or it is incomplete, no need to worry! You can complete the challenge without the backpack. Download the full challenge, with all activity instructions included, from the BC Girl Guides website. <http://bc-girlguides.org> select Program > Challenges & Activities > Provincial Challenges.



The Eco Pak challenge allows girls and Guiders of all branches in Guiding to engage in hands on interactive activities to help them learn about the environment. It is divided into four categories with the challenge requiring a specific number of activities to be completed from each category.

Remember that these are only suggested activities, and all activities can be adapted to ages, space, location and available resources.

Two meetings plus service are required to complete the challenge.

*\*originally published in the May 2014 FunFinder.*

## Meeting Plan

- 5-10 min: Gathering: Eco Word Search
- 5 min: Opening Introduction
- 5 min: Groundwater Pollution Experiment
- 5-10 min: Lap Sit
- 10-15 min: Weird Web
- 10 min: The Great Cookie Extraction
- 45 min: Round Robin
  - 15m: Oil Spill Cleanup
  - 15m: Elements Game & Pollution Dilution
  - 15m: Pop Bottle Composter
- 10 min: Sound Mapping
- 5 min: Closing

*120 minute meeting. Approximate activity times shown.*

### Program Connections

**Up Close & Personal w/ Nature**  
**Our Environment**  
**Eco Pak Challenge**

## Meeting Supplies

- |                                                                                 |                                                                    |                                                                                                                                                            |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> word search puzzles                                    | <input type="checkbox"/> paper towel                               | <input type="checkbox"/> elastic bands                                                                                                                     |
| <input type="checkbox"/> pencils, crayons, markers                              | <input type="checkbox"/> a large cookie sheet                      | <input type="checkbox"/> old nylons                                                                                                                        |
| <input type="checkbox"/> 3 glasses                                              | <input type="checkbox"/> oil                                       | <input type="checkbox"/> scissors                                                                                                                          |
| <input type="checkbox"/> water                                                  | <input type="checkbox"/> small rocks and sand                      | <input type="checkbox"/> a mixture of “green” materials such as grass, fruit, vegetable scraps, and “brown materials” such as newspaper, dried leaves etc. |
| <input type="checkbox"/> 3 celery stalks with leaves                            | <input type="checkbox"/> small pieces of wood, grass, and feathers | <input type="checkbox"/> soil                                                                                                                              |
| <input type="checkbox"/> food colouring                                         | <input type="checkbox"/> a small handheld fan                      | <input type="checkbox"/> scale                                                                                                                             |
| <input type="checkbox"/> knife                                                  | <input type="checkbox"/> an assortment of cleaning supplies        | <input type="checkbox"/> 750g and 250g cottage cheese or yogurt containers                                                                                 |
| <input type="checkbox"/> signs from Who am I? activity                          | <input type="checkbox"/> ball                                      | <input type="checkbox"/> paper and pencil                                                                                                                  |
| <input type="checkbox"/> two balls of at least 100 m of twine or very thin rope | <input type="checkbox"/> 2 clear jars                              |                                                                                                                                                            |
| <input type="checkbox"/> chocolate chip cookies                                 | <input type="checkbox"/> large clear bowl                          |                                                                                                                                                            |
| <input type="checkbox"/> toothpicks                                             | <input type="checkbox"/> 2 litre plastic pop bottles               |                                                                                                                                                            |

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## Opening Introduction: What is an Ecosystem?

An ecosystem is all living plants, animals and organisms in a specified area, the way they interact with each other and the environment around them. In an ecosystem, everything has its own role.

For example, a tree is part of an ecosystem. It depends on non-living things like water, sunlight, and weather to live and grow. In turn, there are all kinds of living things that depend on the tree to live and grow. When anything unfamiliar happens to this ecosystem, such as a new animal, a change in temperature, etc., it can throw it out of balance. This can cause change to the ecosystem that can sometimes be harmful to the dependants of the system, or even entirely destroy it.

With that in mind, we need to remember that everything we do, every piece of garbage we throw out, every toxic chemical we use, etc. affects the ecosystem around us.

## Eco Word Search

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | D | E | S | Z | N | R | E | U | S | E | E | S | O | V |
| T | N | I | C | E | L | E | C | T | R | I | C | I | T | Y |
| T | G | V | E | U | L | J | L | K | P | M | O | K | B | B |
| W | R | R | I | C | D | L | R | O | J | G | C | D | T | S |
| C | G | O | Y | R | I | E | L | B | A | W | E | N | E | R |
| O | L | C | P | F | O | L | R | R | A | H | N | E | C | G |
| B | E | I | D | S | U | N | B | F | T | T | T | V | O | N |
| R | H | N | M | T | N | A | M | S | F | R | R | R | M | I |
| K | A | U | I | A | G | A | Y | E | Y | A | E | E | P | T |
| L | H | O | V | E | T | L | R | H | N | E | E | S | O | A |
| E | N | E | R | G | Y | E | O | T | T | T | S | N | S | E |
| W | I | L | D | L | I | F | E | B | R | L | H | O | T | H |
| P | C | P | M | T | A | T | I | B | A | H | A | C | M | I |
| R | E | T | T | I | L | L | S | Z | X | L | B | E | D | Z |
| W | A | T | E | R | E | L | S | E | T | S | A | W | H | H |

CLIMATE

COMPOST

CONSERVE

EARTH

ECOCENTRE

ELECTRICITY

ENERGY

ENVIRONMENT

GARBAGE

GLOBAL

GREEN

HABITAT

HEALTHY

HEATING

LANDFILL

LITTER

POLLUTION

RECYCLE

REDUCE

RENEWABLE

REUSE

TRANSPORT

TREES

WASTE

WATER

WILDLIFE

Created by Puzzlemaker at [DiscoveryEducation.com](http://DiscoveryEducation.com)  
 Fulfills part of the Fun & Games section of the Eco Pak challenge

## Groundwater Pollution Experiment

*Hands On Learning. Eco Pak Challenge, page 29.*

The purpose of this experiment is to help the girls understand how pollution gets into food through water contamination.

### Directions

1. Fill all three glasses of water about  $\frac{3}{4}$  full.
2. When you do this experiment, place the emphasis on the concept of groundwater and the effects of pollution. Pretend the food colouring is a form of pollution - add about four drops of blue food colouring to the water in one glass and about four drops of red food colouring to the water in the second glass; do not add anything to the water in the third glass. Watch the food colouring swirl and take over the water.
3. Cut the celery stalks about 1 inch from the base of the stalk and then place one into each of the three glasses. Pretend that they are little plants, trees or even people who drink water from the ground.
4. Put the glasses aside, and at the end of your meeting, observe the celery. You may need to break off part of the stem to see changes in the veins of the celery. You should be able to see how the "polluted" water has moved up the stalk.
5. Discuss with the girls how pollution in the water affects us all, and how it can be absorbed into our food.

### Supplies

- 3 glasses to hold water and celery
- water
- 3 celery stalks with leaves
- food colouring (red & blue)
- knife

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## Lap Sit

*Fun & Games. Eco Pak Challenge, page 5.*

### Directions

1. Have the girls stand in a circle with their shoulders touching. Everyone should be facing the center of the circle.
2. Go around the circle and number the girls off 1 to 4. Ones represent "food", twos represent "water", threes represent "shelter", and fours represent "space". The entire circle represents a good habitat.
3. Ask everyone to turn to their right so that each girl is now facing the back of the girl standing in front of her.
4. Have everyone place their hands on the shoulders of the girl standing in front of them.
5. On the count of three, have everyone put their legs together and then sit down slowly until they are sitting on the lap of the girl behind them. The girl behind them acts as a chair for the girl in front. It is important that everyone does this at the same time! If this works, then you will have a good habitat and it will not collapse.
6. Next, make up a scenario where one of the components of the habitat is removed. For example, remove all the girls who are the "shelter" from the circle to represent deforestation, or the cutting down of all the trees in the forest. Have the girls remaining attempt to sit down in their circle, without moving, to fill in the spaces left by the girls who were removed. You will see that the habitat has fallen apart. Reinforce the concept that without shelter, organisms have no place to keep warm and stay safe.

## Eco-Message

The purpose of this game is to teach the concepts of a habitat, a place where an organism lives, and its four components (food, water, shelter, and space). The girls should realize that organisms depend on these four essential components and the removal of any one of these components would have a huge impact on the ecosystem. Have the girls list some examples of the four components. Explain that without these four components, survival is not possible.

## Weird Web

*Hands On Learning. Eco Pak Challenge, page 17.*

*Canadian Parks and Wilderness Society (CPAWS) has given BC Girl Guides permission to use this educational content from their Southern Alberta's Education Resources for the Eco Pak Challenge. Please visit their website at [http://cpaws-southernalberta.org/upload/5min\\_Fieldtrips.pdf](http://cpaws-southernalberta.org/upload/5min_Fieldtrips.pdf) to access the original content.*

### Supplies

- signs from **Who am I?** activity, included in Appendix D of the **Eco Pak challenge**.
- two balls of at least 100 m of twine or very thin rope

## Directions

1. Instruct students to stand or sit in a circle, showing their **Who Am I?** signs. You should also be part of the circle. Tell students that you will be playing the role of the sun, the ultimate source of life for all things (as befits your role as teacher!). Pass the ball of string to the tree, and say "I am passing the ball to the tree, because it needs me to survive. I give energy to the tree."
2. Tell students that they can pass the ball to another ecosystem element in the circle only if it needs you in order to survive or if you need it in order to survive". For example, the squirrel could pass the ball to the tree (which it needs to survive) or to the owl (which needs it to survive).
3. Make sure that each exchange is justified by each student as they pass the ball, and that the whole group understands and agrees with the rationale that is given. Challenge students to establish connections with everyone in the circle, so that no organisms are left out. (Note: you might find it useful to have students rehearse this by having them point to ecosystem elements they need to survive – or that need them to survive - before the ball of string is passed).
4. When every organism is connected, have students pull gently to make the string taut. Ask students to examine the pattern they have created. Tell them that this pattern represents the very complex pattern of interconnections between organisms that occurs in a natural ecosystem. For this reason, interrelationships within an ecosystem are sometimes referred to as the 'web of life'. Ask students if the web they created is more simple or more complex than the web of life that actually exists in their schoolyard or in a park; students should realize that things in nature are far more complex than the simple web they have created.
5. Tell students that something has just happened to change this ecosystem: a new community is being built nearby, and an area of the forest will need to be logged to provide the space. Keeping the string taut, ask the "tree" student(s) to suddenly release the string when you count to three. After the string is released, immediately ask if anyone felt the tension in the string change when the tree dropped out (several, including the squirrel, should say yes). Ask those affected by the loss of the tree to say how they are affected.
6. Count to three again, and ask these "affected" students to in turn drop the string. Keep going until everyone has dropped the string. Have students drop the string in front of them so they can pick it up again for the next round. Students should come to realize that any

change to an ecosystem - whether slight or profound - is felt throughout the system. Tell students the golden rule of ecology: In an ecosystem, you can never do just one thing.

7. Easy Option: Rather than have students drop their strings, ask them to gently tug on the string. Those feeling the tug can tug in turn, and so on. This eliminates the need to pick up the dropped string.

### Eco-Message

The girls should understand how different organisms are interconnected in a food web. The Sun is the source of energy for all life. The energy from the Sun is captured by plants, which are then eaten by plant-eating animals (herbivores). These animals are then eaten by carnivores. Discuss the pattern that is created by the string as it is passed from one person to the next.

See the Eco Pak challenge for instructions on playing the game with changes to the ecosystem.

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## The Great Cookie Extraction

*Hands On Learning. Eco Pak Challenge, page 22.*

The goal of this challenge is to “mine” chocolate chips from cookies to better understand what happens to the environment when we mine for fossil fuels like coal.

### Supplies

- chocolate chip cookies
- toothpicks
- paper towel

### Directions

1. Hand out one chocolate chip cookie to each pair of girls.
2. Ask the girls to guess how many chocolate chips there are in each cookie.
3. Give the girls a set amount of time to try to get as many chocolate chips out of the cookie using their hands and the toothpicks provided. Place the extracted chocolate chips on a piece of paper towel.
4. Once the time is up, ask the girls to count the number of chocolate chips on the paper towel.
5. Ask the girls to take note of the condition of the cookie after they have taken out all the chocolate chips. Has the cookie crumbled? Is it still intact? Most of the girls should notice that all that is left are crumbs. Ask the girls if they can put the cookie back to the way it was.
6. Have a discussion about how mining different resources (e.g. coal, fossil fuels) can have a negative impact on the environment.
7. Repeat this activity with another chocolate chip cookie. Ask the girls to carefully take out as many chocolate chips as possible without causing a lot of damage to the cookie. After 4 minutes, discuss the results. Compare the number of chocolate chips extracted and the condition of the cookie this time to the previous time.

### Eco-Message

Consider the pros and cons of mining for natural resources. What are the effects of trying to extracting things (e.g. drilling for oil, mining for coal, etc.)? Is the environment harmed when humans are trying to obtain these natural resources?

## Oil Spill Cleanup

### *Hands On Learning*

In BC, we are very aware of how much damage oil spills can do to our environment, but to actually understand it, we can try to recreate an oil spill and experiment with different ways to clean it up.

### **Directions**

1. Create a beach scene in the cookie sheet using the rocks, sand wood and grass
2. Add water to the tray so it is about 2/3 full, then drop some feathers (ducks and seagulls) into the water.
3. Carefully pour some oil onto the water
4. Using your fan at one end of the tray, direct it so the oil moves towards the shore, then turn it off.
5. Use different items to find out what cleans up the oil the best
6. Record your observations.
7. At the end, talk about what happened. What cleaned up the spill the best? Were you able to contain the spill? Explain that even if it looks like you've cleaned it up, there is still oil in the water.

### **Supplies**

- a large cookie sheet
- water
- oil – any kind will work, but it will show up better if you use dirty oil (car oil works well)
- small rocks and sand
- small pieces of wood, grass, and feathers
- a small handheld fan
- an assortment of cleaning supplies: e.g. sand, kitty litter, string, Dawn dish soap, laundry degreaser, newspapers, j-cloths, etc.

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## Elements Game

### *Fun & Games*

### **Directions**

1. Get the girls to stand in a circle. Select one to be the caller and stand in the centre of the circle with the ball.
2. She calls out one of the words: Earth, Wind, Water or Air, then throws the ball to a girl in the circle.
3. The person catching the ball has to name something that lives in the element. If Fire is called, the girl says nothing since nothing can live in fire. She just passes the ball back to the centre of the circle as quickly as possible.
4. No repeats are allowed.

### **Supplies**

- ball

## Pollution Dilution

*Hands On Learning. Eco Pak Challenge, page 23.*

This is a quick demonstration about the consequences of polluting water, and how long it takes to remove the pollution from it.

*Adapted from an activity in "World of Fresh Water" by the United States Environmental Protection Agency, 1997.*

### Supplies

- 2 clear jars
- green food colouring
- large clear bowl
- water

### Directions

1. Add some water to one clear jar ("polluted jar"). The water will represent water in a lake.
2. Add 2-3 drops of green food colouring to one jar. The food colouring will represent pollutant in the lake.
3. Explain to the girls that rainwater will dilute the pollutant found in the lake so that the water in the lake will eventually be clean again. The rainwater is the new water and this water will gradually replace the water that is already in the lake. Ask the girls how long they think it would take for this to happen? For small lakes it will take about 10 years and for bigger lakes it will take over 200 years.
4. Explain to the girls that renewal time refers to the amount of time it takes for "new" water to replace all of the existing lake water.
5. To demonstrate renewal time in this activity, add water to the second clear jar ("clean water jar"). The water in the second jar will represent new water (e.g. rainwater, groundwater, and water from runoff from surrounding areas, etc).
6. Hold the "polluted jar" over a large bowl. Carefully pour the water from the "clean water jar" into the "polluted jar", making sure that all the water that flows out will end up in the large bowl. The girls should see that the "pollutant" is slowly being flushed out of the "lake".
7. Ask the girls if they can see the green food colouring (pollutant) in the lake. If they can still see the green food colouring, then do another renewal cycle. Pour another jar-full of clean water into the polluted water jar to flush out the food colouring. It will probably take 3 to 4 times before the girls will no longer see the pollutant.
8. Have the girls examine the water in the bowl. Ask them if the pollutant has been removed from the water? Is it still there? The girls will realize that the pollutant has not been removed, but just displaced into another location (e.g. moved from one lake to another lake). Ask them if they have actually fixed the problem.

### Eco-Message

It is difficult to fix a water pollution problem. Dilution is sometimes used as a solution for pollution, but it takes a long time. This activity gets the girls to consider two concerns related to cleaning the lake of pollutants: 1. Where does the polluted water from a lake go? Does it move into a river or to another lake? 2. Have all the pollutants been flushed from the lake so that the lake water is now considered to be "renewed"?

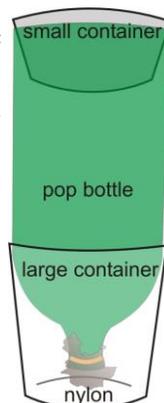
## Pop Bottle Composter

### Hands On Learning.

This activity helps us to understand the process of decomposition and how things that are regarded as waste can be turned into valuable nutrients for the soil

### Directions

1. Place the nylon over the spout of the pop bottle and secure tightly with the elastic band.
2. Turn the bottle upside down in the larger cottage cheese container. There should be room for it to drain.
3. Cut the bottom of the bottle off at the ridge.
4. Now place the smaller container so it sits inside the pop bottle. It will act as a lid.



### Supplies

- 2 litre plastic pop bottle
- an elastic band
- an old nylon
- scissors
- a mixture of “green” materials such as grass, fruit, vegetable scraps, and “brown materials” such as newspaper, dried leaves etc.
- soil
- scale
- a 750g and a 250g cottage cheese or yogurt containers

### Using your composter

1. Make a list of what you are composting, including the soil. Weigh it and record the weight.
2. With the lid removed, start with some soil in the bottom of your composter (pop bottle). Pack green and brown material into the bottle in alternating layers, making sure that the brown material has been broken apart into smaller pieces.
3. Add more soil and sprinkle with water. Cover with the lid.
4. After a week, stir the compost. Do this every week for a month or until the green and brown materials have broken down.
5. Weigh the finished compost.
6. This gives the girls a first hand look at how plant and certain recyclables break down and turn into something that benefits the environment instead of polluting it. Talk about how composting can help reduce what we put into our landfills.

## Sound Mapping

*Taking it Outside. Eco Pak Challenge, page 34.*

### Directions

1. Each girl finds an area outside where they are at least 5 feet away from anyone else.
2. They sit quietly and listen to the sounds going on around them. In the middle of the paper, they draw something to represent themselves.
3. As they listen, they draw representations of the sounds they hear and the distance in relationship to themselves.
4. At the end of the allotted time, ask them to share their drawings and what they heard, then have them compare it to what others heard.

### Supplies

- paper and pencil

# ALL ABOUT NATURE (ECO PAK CHALLENGE)

## AN INSTANT MEETING FOR PATHFINDERS FROM THE BC PROGRAM COMMITTEE

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The second of two meetings to complete the BC Eco Pak challenge. For Pathfinders we suggest that the two meetings be spaced about a month apart so the girls can bring in their composters to show what has happened with them.. Two meetings plus service are required to complete the challenge.

*\*originally published in the May 2014 FunFinder.*

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### Meeting Plan

Before the meeting: remind girls to bring their composters with them to this meeting.

- 10 min: Gathering: Cryptogram Puzzle
- 5 min: Opening Discussion
- 10-15 min: Food Chain Relay
- 10 min: Taster's Choice
- 10 min: Nature Observation Kim's Game
- 10-15 min: Texture Rubbings
- 15-20 min: Nature Trust Walk
- 15-20 min: Nature Campfire
- 5 min: Closing

*120 minute meeting. Approximate activity times shown.*

#### Program Connections

**Out on the Trails**  
(Nature trust walk)

**Up Close & Personal w/ Nature**

**Our Environment**

**Eco Pak Challenge**

## Meeting Supplies

- cryptogram puzzles  
(solution: *When one tugs at a single thing in nature, he finds it attached to the rest of the world. - John Muir*)
- pencils or pens
- food chain relay cards
- 6 clear bottles
- carbonated water
- salt
- lemon juice
- sugar
- artificial flavouring (e.g. vanilla, coconut, etc.)
- small Dixie cups
- 20 items collected from nature (i.e. pebble, pinecone, grass, seeds, leaves, twig, bark, etc.)
- a sheet or blanket to cover the items
- paper
- large crayon with paper removed
- cardstock
- craft glue
- scissors
- field guide for trees
- one blindfold per team of two

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## Opening Discussion

Ask the girls what they know about food chains and ecosystems. Tell them that today they're going to learn about both of these things so that they have a better understanding of how what they do affects all life around them.

Take a look at their composters to see what has happened with them. Talk about decomposition being an important part of the food chain.

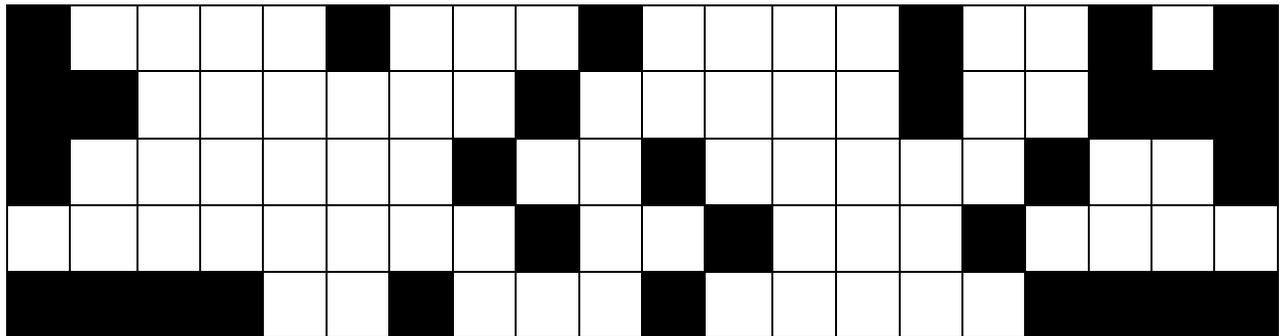
# Cryptogram Puzzle

*Fun & Games.*

*Note: you can create your own puzzle at [www.discoveryeducation.com/free-puzzlemaker/](http://www.discoveryeducation.com/free-puzzlemaker/)*

Solve this Fallen Phrases puzzle to read a quote about nature by John Muir.

A fallen phrase puzzle is a puzzle where all the letters have fallen to the bottom. Somehow, all the letters got mixed up on their way down, but they are still in the same column. If there is only one letter in a column, place it in the one box above it first. Next, look for any two-letter words, and see if you can figure out what work it could be using the letters in the columns below it. As you use each letter, cross it off in the columns below, so you know what letters are left. Finally, use trial and error to figure out the rest of the puzzle.



N

N N

H A C R O T E U O G D

N T T U H L N H E O W T S L S T A

W A I O G E D H T T F G R D A N E T

A T S E N F E E E T H I I H E I R I S T

## Food Chain Relay

### *Fun & Games.*

Using the following descriptions, explain to the girls the parts of the food chain, and give an example of how energy is passed from one living thing to another, e.g. Acorn, Squirrel, Hawk. The squirrel eats the acorn, the hawk eats the squirrel.

### Supplies

- food chain relay cards

### Producers

Plants are called producers because they use a process called photosynthesis to produce glucose/sugar and oxygen from the sun's energy, carbon dioxide pulled from the air and water from the soil.

### Consumers

Animals are called consumers because they cannot make their own food. That means that they need to eat (consume) plants and/or animals to survive.

There are 3 types of consumers:

- Herbivores are animals that eat only plants
- Carnivores are animals that eat only animals
- Omnivores are animals that eat both animals and plants.

### Decomposers

Bacteria and fungi are decomposers. They eat dead plants and animals in a process that breaks them down and decomposes them. During the decomposition process, they release nutrients and mineral salts back into the soil which in turn are used by the producers.

### Directions

Divide the girls into teams and line them up at one end of the room. At the other end of the room, turn the cards upside down. Explain that in this game, food chains consist of 3 cards only.

The first girl in line picks a card and places it on the table.

She runs back, tags the second girl who runs up and picks a card. If the card belongs to the same food chain as the first card, she can lay it beside it, e.g. if the first girl has picked a caterpillar, and the second picks a flower, she would place the flower to the left of the caterpillar. If it's not part of the same food chain, then she lays the card on the table to start a different food chain.

She runs back and tags the next girl who goes up and either picks a new card or moves a card that has already been turned over into the correct location of the food chain.

This continues until all cards have been used. There are several possible combinations, so at the end, have the girls explain their choices.

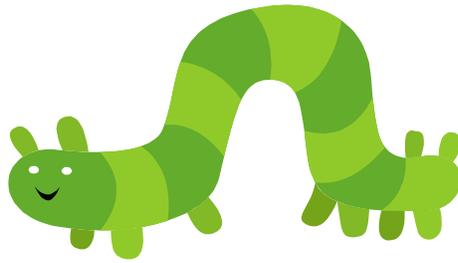
Samples of food chain combinations:

- flower, caterpillar, bird
- grass, rabbit, fox
- acorns, mouse, snake,
- mouse, snake, hawk
- algae, fish, dolphin
- fish, dolphin, shark
- grass, grasshopper, mouse
- jellyfish, turtle, shark
- grass, grasshopper, lizard

To make the cycle more difficult for older girls, increase the number of participants in the food chain and/or make it a complete cycle by adding bacteria, fungi etc



**Flower**



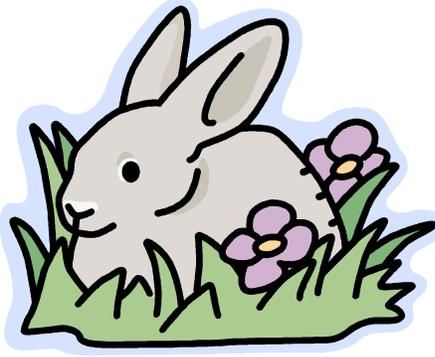
**Caterpillar**



**Bird**



**Grass**



**Rabbit**



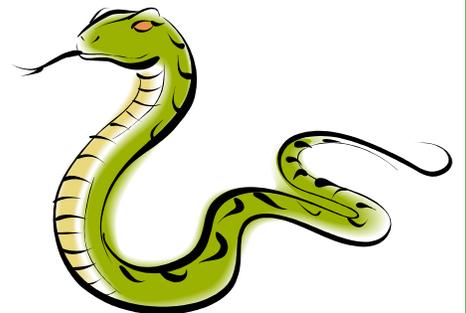
**Fox**



**Acorn**



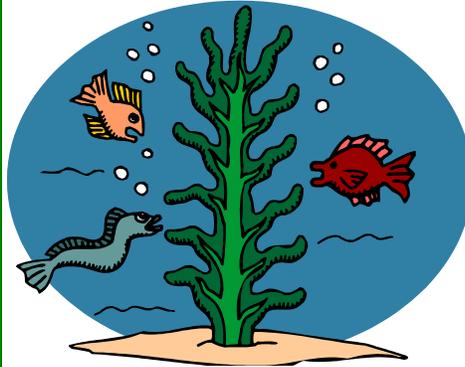
**Mouse**



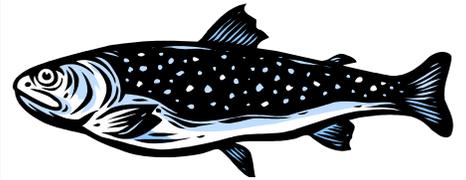
**Snake**



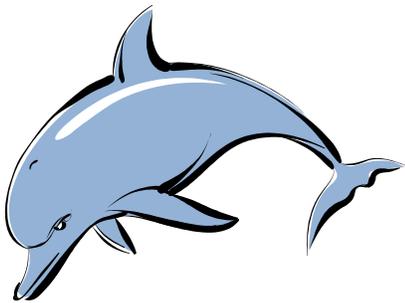
**Hawk**



**Algae**



**Fish**



**Dolphin**



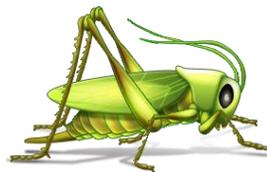
**Shark**



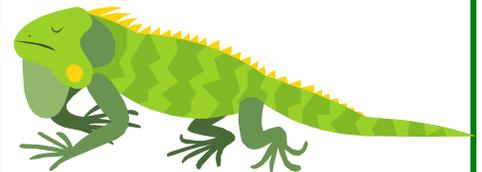
**Jellyfish**



**Turtle**



**Grasshopper**



**Lizard**

## Taster's Choice

*Hands On Learning. Eco Pak pg 24.*

*Adapted from an activity in "World of Fresh Water" by the United States Environmental Protection Agency, 1997.*

**Note:** Make sure to tell the girls that using your sense of taste is not a good way to determine whether water is safe to drink. But for the purpose of this activity, all the substances used are safe.

### Directions

1. Remove the labels from 6 clear bottles.
2. Label the 6 bottles from 1 to 6.
3. Fill the 6 bottles with different water mixtures:
  - Bottle 1: plain water
  - Bottle 2: carbonated water
  - Bottle 3: water with salt
  - Bottle 4: water with lemon juice
  - Bottle 5: water with sugar
  - Bottle 6: water with artificial flavouring (e.g. vanilla, coconut)
4. Make sure that the water in the 6 bottles looks the same so that the girls cannot tell them apart.
5. Explain to the girls that none of the water samples used in this activity are dangerous to drink. They will be asked to drink the 6 water samples.
6. Set the 6 bottles out on a table. Ask the girls which bottle they think has "clean water" (e.g. tap water). Record their answers.
7. Have the girls sample the water from each bottle by pouring a small amount into a Dixie cup. Have another Dixie cup available for the girls to spit in.
8. After everyone has had a chance to sample the drinks, discuss what they found during the activity.
9. Discuss what freshwater (water from lakes) is with the girls.

### Supplies

- 6 clear bottles
- carbonated water
- salt
- lemon juice
- sugar
- artificial flavouring (e.g. vanilla, coconut, etc.)
- small Dixie cups

## Nature Observation Kim's Game

*Taking it Outside*

### Directions

1. In an outdoor area, secretly gather the natural items together and place them on the ground. Cover them with the sheet or blanket.
2. Gather the girls around the covered items and explain to them that they will have just two minutes to observe the items, then five minutes to write down everything they can remember.
3. Lift the sheet and start timing.

### Supplies

- 20 items collected from nature (i.e. pebble, pinecone, grass, seeds, leaves, twig, bark, etc.)
- a sheet or blanket to cover the items
- paper and pencil for each girl

4. When time's up, and everyone has had five minutes to write down what they remember, go around the circle and have each girl describe one of the items she remembers, with as much detail as possible. All other girls check that item off their list, so the next girl around the circle describes another item she remembers.
5. After the girls have described as many items as they can remember, remove the sheet to see if they missed anything.

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## Texture Rubbings

### *Taking it Outside*

Bark and leaf rubbings can be a simple way to look at and identify trees. This is best done on a dry day because otherwise, wet bark can make your paper tear.

### Directions

1. Hold a piece of paper up against the bark of a tree.
2. Rub the side of the crayon over the paper until the pattern from the bark appears. It may take several times before it becomes clear.
3. If you would like, make rubbings from several different trees. Compare the patterns. Can you identify which rubbing came from which tree? If you need to, use a field guide to help you identify them. Make sure you write the name at the top so you'll be able to identify them again the next time.

### Supplies

- large crayon with paper removed
- regular 20 lb photocopy paper
- trees
- cardstock
- craft glue
- scissors
- pen
- field guide for trees

### Take it a step further

Once your rubbings are complete and you have identified them, cut around them carefully and glue them to cardstock. Punch holes in the edge and fasten them together with twine. Draw a picture of the tree's leaf on the page and write down 1 or 2 interesting facts about the tree. You've now created your own personal field guide.

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## Nature Trust Walk

### *Taking it Outside*

This is an active exercise in developing trust and awareness of what's around you in a nature setting.

### Directions

1. Find a place outside that has a variety of different objects to touch, walk over, under, etc., and if possible, where birds and critters might be close by.
2. Pair everyone off. Decide which girl will be blindfolded first and which girl will lead first.
3. Once one girl is blindfolded, the "leader" guides the first girl in a direction that she feels interesting. She should give her partner the opportunity to try out some of her senses with guidance, e.g. touch things that are different textures, smell things that might be interesting, listen to sounds around her, and move through the route giving direction on how to move under, over and around things.

### Supplies

- one blindfold per team of two

4. After 5 minutes, the partners change places.
5. Once the second girl has had her chance to be blindfolded, bring the whole group together for a discussion.
  - What type of textures did you feel?
  - What did you hear?
  - What did you smell?
  - Was it hard to know where and how to move?
  - Were you more or less aware of what was going on around you?

It is often said that the blind are more acutely aware of what is going on around them and that their senses make everything sharper and more intense. That includes being able to move around in nature and enjoy it.

## Nature Campfire

*Hands On Learning. Eco Pak page 31 & 99.*

A list of suggested songs related to nature are included in Appendix F of the Eco Pak Challenge. Here is one possible campfire (see the Eco Pak for links to song lyrics and tunes):

| Song                          | Lyrics Link                                                                                                                                             | Tune Link                                                                                                   |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Tall Trees                    | <a href="http://guidingjewels.ca/resources/songs/593-song-tall-trees">http://guidingjewels.ca/resources/songs/593-song-tall-trees</a>                   | <a href="http://tunequide.e-guiding.com/tall-trees.mp3">http://tunequide.e-guiding.com/tall-trees.mp3</a>   |
| Squirrel                      | <a href="http://guidingjewels.ca/resources/songs/529-song-squirrel-squirrel">http://guidingjewels.ca/resources/songs/529-song-squirrel-squirrel</a>     | <a href="http://tunequide.e-guiding.com/squirrel.mp3">http://tunequide.e-guiding.com/squirrel.mp3</a>       |
| I Like the Flowers            | <a href="http://guidingjewels.ca/resources/songs/574-song-i-like-the-flowers">http://guidingjewels.ca/resources/songs/574-song-i-like-the-flowers</a>   | <a href="http://peninsulaquides.webs.com/guidesongs.htm">http://peninsulaquides.webs.com/guidesongs.htm</a> |
| Little Green Frog             | <a href="http://dragon.sleepdeprived.ca/songbook/songs3/S3_20.htm">http://dragon.sleepdeprived.ca/songbook/songs3/S3_20.htm</a>                         | <a href="http://www.youtube.com/watch?v=dki50rmJV9A">http://www.youtube.com/watch?v=dki50rmJV9A</a>         |
| Fable: The Lion and the Hyena |                                                                                                                                                         |                                                                                                             |
| Cuckoo                        | <a href="http://guidingjewels.ca/resources/songs/532-song-the-cuckoo">http://guidingjewels.ca/resources/songs/532-song-the-cuckoo</a>                   | <a href="http://peninsulaquides.webs.com/guidesongs.htm">http://peninsulaquides.webs.com/guidesongs.htm</a> |
| Listen to the Earth           | <a href="http://guidingjewels.ca/resources/songs/572-song-listen-to-the-earth">http://guidingjewels.ca/resources/songs/572-song-listen-to-the-earth</a> | <a href="http://tunequide.e-guiding.com/listen.mp3">http://tunequide.e-guiding.com/listen.mp3</a>           |

*Do your traditional meeting closing following the campfire.*

## Fable: The Lion and the Hyena

*Source: Campfire Activities, Girl Guides of Canada – Guides du Canada.*

(a Sudanese tale)

Once upon a time, a lion and a hyena went hunting together. They killed a deer and the hyena said, "I wonder how we can get some fire to cook this deer?"

The lion was surprised and said, "Why cook it? Let's eat it raw!"

"Oh no," said the hyena, "we must cook it." He looked around and pointed to the sun setting in the west. "Look, there's a good wood-fire. Just run over there and bring back some logs and embers."

So the lion ran off, and ran and ran toward the west until the sun had gone down and the fire had all gone.

In the meantime, the hyena quickly ate up all the deer until only the tail was left. Then he took the tail and stuck it in the ground so that just the end of it was sticking up.

After a while, the lion came back and the hyena asked, "Well, where's the fire?'

The lion answered, "While I was running, the fire disappeared into the earth so I didn't get any. But where's the deer?"

"Oh," said the hyena shaking his head, "while you were running the deer also disappeared into the earth. He's not quite gone yet though, his tail is still sticking out. You'd better grab hold of it tight or else he'll be completely gone!"

So the lion caught hold of the tail and pulled, but it came out of the ground with no sign of the deer attached.

"You are a silly:" said the hyena. "You've broken off the tail! Now the deer has gotten away and we'll never be able to get him out!"

And they never did.

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## Service

These two meetings complete all except the service component of the Eco Pak Challenge. Discuss with the girls what type of service projects they could do that will fit in with the requirements for the Eco Pak challenge.

Some ideas are:

- Fish Hatcheries
- Recycle Plants
- Conservation and Experimental Forests
- Stream/Shoreline/Community Clean-Up
- Community Gardens
- Painted Fish on Drains
- Build butterfly, bat and bird houses to put up in parks and at waterfront
- Adopt a Forest, Animal, etc.