

ECOSYSTEMS (ECO PAK CHALLENGE)

AN INSTANT MEETING FOR BROWNIES
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: Hidden Picture Colouring
5 min:	Brownie Opening
5 min:	Opening Introduction
5-10 min:	Shrinking Island Game
10-15 min:	Weird Web
10 min:	The Great Cookie Extraction
20-30 min:	Round Robin – Outside
	10-15m: Forest Squares
	10-15m: Eco Bingo Hunt
5 min:	Brownie Closing

90 minute meeting. Approximate activity times shown.

Program Connections

Key to the Living World

1. Wondrous Walks
4. Celebrate Earth Day

Key to My Community

1. My Neighbourhood

Interest Badges

Saving our Plants and Animals
Happy Hiking

Eco Pak Challenge

Meeting Supplies

- printed hidden picture puzzles
- pencils, crayons, markers
- sheets of newspaper or skipping ropes
- music
- 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
- chocolate chip cookies
- toothpicks
- paper towel
- a piece of string about 4 meters long per girl
- paper
- Bingo sheets

Gathering: Hidden Picture Colouring

Directions

For Brownies, a hidden picture colouring sheet is an appropriate gathering activity, and can be applied to the Fun & Games section of the challenge.

You can find hidden picture puzzles on the Highlights for Kids website at <http://www.highlightskids.com/hidden-pictures/>.

One suggested hidden picture puzzle for the Eco Pak theme is Springtime Jamboree http://www.highlightskids.com/media/kids/highlightskids/engines/hidden-pictures-interactive/pdfs/HL_hp_05516_BW.pdf

Supplies

- printed hidden picture puzzles
- pencils, crayons, markers

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.

Shrinking Island Game

Fun & Games. Eco Pak Challenge, page 8.

Directions

1. Place sheets of newspapers around the room to create "islands". You can also create islands by forming skipping ropes into circles on the ground. If there are enough supplies, try to create one island per girl.
2. The girls are going to represent animals that live on different islands.

Supplies

- sheets of newspaper or skipping ropes
- music

3. When the music plays, the girls have to pretend to look for food and water – away from their islands. They will continue to do this as long as the music is playing.
4. When the music stops, the girls have to quickly find safety and shelter on an island. This is to represent the animals seeking safety from their predators or harsh weather conditions.
5. Everyone must get on an island. If there are no islands available, then the girls must make room for other girls to share. If any of a girl's body part is outside the island, then she has "not survived". Encourage the girls to help each stay alive and fit on an island.
6. As the game continues, an island is removed during each round. This is to represent urbanization (e.g. cities) and human developments, where humans have taken over wildlife habitats. The game ends when there are only one or two islands left and all the girls are forced to squish together so that everyone fits. Stop the game when it is no longer possible to fit everyone on the remaining islands.

Eco-Message

The girls can learn about the importance of habitat and how a decrease in space for organisms to live can lead to limited resources like food, water, and shelter due to competition amongst the organisms in that community. Brainstorm with the girls and come up with ways in which a habitat can be changed. They will realize that both natural disasters (e.g. acid rain, greenhouse effect, global warming, climate change, forest fires, volcanic eruptions) and human activities (e.g. road construction, building of new homes and golf courses, expansion of farmland, deforestation, pollution) have negative impacts on the environment. Directions

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 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.

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?

Forest Squares

Taking it Outside

Directions

1. Take the girls out into a wooded area, a field, bog or meadow. Lay down the string so that it forms a square. With a pad and pencil, draw or write all the different kinds of plants and bugs that you find in the square. Count how many of the same thing there are, e.g. how many of the same plant, how many of the same bug, etc.
2. Now, pick up the string and move about 20 steps away and once again, lay down your string in a square. Do the same thing and identify all the plants and bugs in the square. Add them up the same as you did for the first square.
3. Now compare what you found in the first square to what you found in the second square. Were there more of one plant in one of the squares? Were there more of bugs? Do you see any reason why that would be the case?

Supplies

- a piece of string about 4 meters long for each girl
- pencil and paper

Eco Bingo Hunt

Taking it Outside

Directions

Before heading out, have a discussion with the girls about what contaminates the earth, e.g. car exhaust, litter, etc.

Go on a walk and have the girls cross off everything that they see on the list. A line of 5 gets a Bingo. When a girl gets a Bingo, have her say which of the squares she's crossed off are good for the environment and which are bad for it and why.

Supplies

- Bingo sheets
- pencils or markers

Eco Bingo Hunt

				
				
		<p>FREE SPACE</p>		
				
				

FOOD CHAINS (ECO PAK CHALLENGE)

AN INSTANT MEETING FOR BROWNIES
FROM THE BC PROGRAM COMMITTEE

The second of two meetings to complete the BC Eco Pak challenge. Two meetings plus service are required to complete the challenge.

**originally published in the May 2014 FunFinder.*

Meeting Plan

- 5-10 min: Gathering: Food Chain Colouring
- 5 min: Brownie Opening
- 5 min: Opening Discussion
- 5-10 min: Food Chain Story
- 10 min: Food Chain Tag
- 20 min: Mini Ecosystem
- 15-20 min: Nature Campfire
- 5 min: Brownie Closing

90 minute meeting. Approximate activity times shown.

Program Connections

Key to the Living World

1. Wondrous Walks
2. Plant Life
4. Celebrate Earth Day

Key to Camping

5. Sing and Shout

Interest Badges

Saving our Plants and Animals

Taking Part (service)

Super Crafts

Eco Pak Challenge

Meeting Supplies

- food chain colouring sheets
- pencils, crayons, markers
- poker chips, bingo tokens, popsicle sticks, etc.
- small stickers
- strips of fabric in 3 different colours
- clean glass jars with lids
- peat moss
- charcoal
- gravel
- small seedlings that will fit in the jars with room to grow
- natural items like seashells, twigs, etc.

Gathering: Food Chain Colouring

Fun & Games.

Directions

Find a colouring sheet online for the girls to visually see a food chain or food web.

<https://www.google.ca/#q=food+chain+coloring&tbm=isch>

Supplies

- food chain colouring sheets
- pencils, crayons, markers

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.

Food Chain Story

Hands On Learning.

Find a story at your local library or bookstore to illustrate food chains. The Best Children's Books.org has compiled a list of appropriate books, with suggested age levels listed.

<http://www.the-best-childrens-books.org/examples-of-food-webs.html>

Food Chain Tag

Fun & Games. Adapted from the Great Canadian Shoreline Cleanup Curriculum Guide.

Directions

1. Explain to the girls that they are going to play a game to represent a simple food chain. The tokens represent food. Scatter the tokens throughout the playing area.
2. Most of the girls will be herbivores, who eat plants. Distribute the green armbands to the herbivores. An example of an herbivore is a mouse. The mice will collect food tokens from the ground.
3. The next group of girls will be carnivores, and they eat the herbivores. Distribute the yellow armbands to the carnivores. An example of a carnivore is a snake. The snakes can only collect food from the mice – they must tag a mouse to collect one food token from her.
4. The final group of girls will be the top predators. They eat the carnivores. Distribute red armbands to the top predators. An example of a top predator is a hawk. The hawks can only collect food from the snakes – they must tag a snake to collect one food token from her.

Summary of tasks: green armbands pick up food; yellow armbands tag girls with green armbands and take one food; red armbands tag girls with yellow armbands and take one food.

Supplies

- poker chips, bingo tokens, popsicle sticks, etc. – 5 times as many tokens as there are players (i.e. for a group of 20 girls, have 100 tokens)
- small stickers to fit on the food tokens – one per girl (i.e. 20 girls = 20 stickers)
- strips of fabric in 3 different colours, long enough to tie around a girl's arm: 60% of one colour (i.e. green), 30% of a second colour (i.e. yellow), and 10% of a third colour (i.e. red). In a group of 20 girls, 12 would have green, 6 would have yellow and 2 would have red.

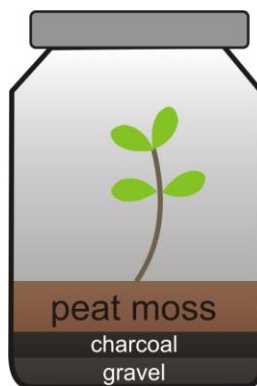
5. Players cannot tag the same girl twice in a row.
6. Give the mice a head start on the game. Allow at least 30 seconds for them to begin collecting food tokens.
7. Announce loudly when the snakes are introduced to the game so that the mice are aware of the danger. Allow at least 30 seconds for the snakes to collect some food tokens from the mice.
8. Announce loudly when the hawks are introduced to the game.
9. Allow the girls to play the game for as long as they desire. If they are getting tired, call the girls in for a discussion.
10. Have the girls count how much food they have. If they have eight or more tokens, they have collected enough food to survive. Talk about which creature is most likely to survive.
11. The girls who have less than eight tokens sit down. They do not have enough food to survive. Ask the remaining girls to look at their food tokens. Do any of the tokens have stickers on them? Explain that the stickers represent pollution, and any girl who has 3 or more stickers has been poisoned and does not survive. Explain to the girls that animals are not aware of pollution, which is why they were not told what the stickers represent.
12. Play the game again, now that the girls know about the pollution. How does this change their strategy?

Mini Ecosystem

Hands On Learning.

Directions

1. Soak the peat moss in water to make it damp.
2. Layer in the jar: gravel, then charcoal, then peat moss.
3. Add your seedling, planting it in the peat moss.
4. Press down to compact the peat moss, but not too hard.
5. Use the natural items to decorate around the plant.
6. Sprinkle a little water in the jar, then cover with the lid.
7. Put the jar into a sunny place.
8. To take care of your plant, only open the jar if it looks dry. Sprinkle a little water in it. Turn the jar around every couple of days to make sure that all sides of the plant get an even amount of sunshine.



Supplies

- a clean glass jar with a lid for each girl
- peat moss
- charcoal (you can find at the aquarium supplier)
- gravel
- small seedlings that will fit in the jars with room to grow
- natural items like seashells, twigs, etc., if you want to build a scene in the jar

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	http://guidingjewels.ca/resources/songs/593-song-tall-trees	http://tunequide.e-guiding.com/tall-trees.mp3
Squirrel	http://guidingjewels.ca/resources/songs/529-song-squirrel-squirrel	http://tunequide.e-guiding.com/squirrel.mp3
I Like the Flowers	http://guidingjewels.ca/resources/songs/574-song-i-like-the-flowers	http://peninsulaquides.webs.com/guidesongs.htm
Little Green Frog	http://dragon.sleepdeprived.ca/songbook/songs3/S3_20.htm	http://www.youtube.com/watch?v=dki50rmJV9A
Participation Story: The Story of the Magic Forest		
Cuckoo	http://guidingjewels.ca/resources/songs/532-song-the-cuckoo	http://peninsulaquides.webs.com/guidesongs.htm
Listen to the Earth	http://guidingjewels.ca/resources/songs/572-song-listen-to-the-earth	http://tunequide.e-guiding.com/listen.mp3

Do your traditional meeting closing following the campfire.

Participation Story: The Story of the Magic Forest

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

Characters and actions

- ◆ **Brownies** - Say "Lend a Hand"
- ◆ **Toadstools** - Say "Brownie Magic"
- ◆ **Berries** - Say "Yum, Yum"
- ◆ **Evergreens** - Say "Creak, creak"
- ◆ **Leaves** - Say "Rustle, rustle"
- ◆ **Birds** - Say "Tweet, tweet"
- ◆ **Animals** - make any kind of animal noise
- ◆ **Brown Owl** - Say "Hoot, hoot"
- ◆ **Mosses** - Say "Fairy Carpets"
- ◆ **Magic Forest** - All jump up, turn around and sit back down

The Story

Once upon a time there was a **Magic Forest**. It was a very beautiful forest because the **Brownies** who lived there worked very hard to keep the **Leaves** swept up, the **Evergreens** properly pruned, and the **Mosses** watered, The **Brownies** also helped the **Birds** to find the nicest **Berries** to eat and the **Animals** to find the warmest homes for the long winter months.

The Fairy Queen was very pleased with the **Brownies'** work, so she decided that before the winter covered the **Magic Forest** with a blanket of snow, she would, if the **Brown Owl** approved, give the **Brownies** a midnight party.

The Fairy Queen needed a lot of help to prepare the party so she called upon the **Animals** to collect as many **Toadstools** as they could find, and put them in the Fairy Ring for the **Brownies'** tea tables. She also asked the **Animals** to bring the softest green **Mosses** for the **Brownies'** to sit on.

The **Birds** were asked to collect the nicest **Berries** and nuts they could find for the feast, and the **Brown Owl** gladly offered to run the games and dances. The Bad Fairies heard of the party

and decided to creep out into the **Magic Forest** and spoil the fun with frowns and bad moods and tempers. Of course it was the **Brown Owl** who saw them first and she quickly sent the news to the Fairy Queen who was very upset. The **Birds** saw the Queen's distress and called the Wind Fairies to make a great storm and blow the Bad Fairies out of the **Magic Forest**.

Everyone began to prepare for the storm as the black clouds rolled across the **Magic Forest**, and the wind whistled in the **Evergreens** and the **Leaves** blew in all directions. The **Animals** carefully took the **Berries** into their dens for safekeeping and the **Brownies** sat on their **Toadstool** tables so that they wouldn't blow away. Even though the Wind Fairies blew and blew they couldn't blow the Bad Fairies from the **Magic Forest**. Then the **Brown Owl** had an idea. "Let's ask the Sunbeam Fairies to shine brightly even in the darkest corner of the **Magic Forest** and see what happens." The Sunbeam Fairies were very happy to be invited to shine at night, and out they danced. The **Birds** began to sing and the **Animals** came out of their dens, the **Evergreens** and the **Leaves** and the **Mosses** shone in the sunlight and everywhere, frowns turned upside down and became smiles. The Fairy Queen arranged the **Berries** cleverly on the **Toadstool** tables and then everyone looked for the Bad Fairies, but they couldn't be found. When the **Brown Owl** called all the smiling **Brownies** to the feast, there were many more **Brownies** than they had expected. Can you guess where the Bad Fairies went?

This ends the story of the **Magic Forest**.

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.