GREAT CANADIAN SHORELINE CLEANUP

Instant Meeting

Check out these fun and engaging activities – and then choose the ones that are best suited for your unit and branch level.

LEARNING ABOUT WATER-BASED ECOSYSTEMS

Activity 1:
Sound Storm

Activity 2:
Walk Through Water

Activity 3:
Where is Water?

LEARNING ABOUT LITTER

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The Shoreline's Dirty Dozen

Activity 2:
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CRAFT

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ACTIVITIES ON COLLECTION DAY

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Mini Scavenger Hunt

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Girl Guides of Canada Guides du Canada

GREAT CANADIAN Shoreline Cleanup™ VANCOUVER AQUARIUM & WWF

A CONSERVATION INITIATIVE OF vancouver aquarium™ WWF®

Instant Meeting

While girls do not need to complete the instant meeting in order to receive a crest, we highly encourage you to run an instant meeting before the cleanup to provide girls with a deeper understanding of water systems and the impact of pollution on aquatic ecosystems, wildlife and people.

Learning Objectives:

Girls will be able to…

- Describe places where water is found in their local environment
- Identify and describe a variety of shoreline animals or plants in a local shoreline ecosystem and understand how these organisms interact with each other
- Understand how litter appears on shorelines, what happens when litter reaches a shoreline and the positive and negative impact humans have on our environment
- Determine which types of litter biodegrade in water and how fast or slow this process is
- Understand a food chain and what happens when pollution enters that food chain
- Identify an environmental issue of local concern and which steps to take to improve the problem on an individual or group basis
- Identify recyclables, non-recyclables and compostables
- Identify themselves as environmental leaders and understand the positive impact that they had as a result of taking part in the Shoreline Cleanup

A **shoreline** is any place where land and water connect. It is also a place where two ecosystems meet. Examples of areas where shorelines exist include recreation areas, camping sites, local swimming holes, rivers, ponds, lakes and oceans. A shoreline can also include school yards because where there are drainage systems, whatever is in the yard will eventually be washed into the sewers and make its way to a larger body of water.

Introduction

Explain to girls the goals of Global Youth Service Day (GYSD) and the Great Canadian Shoreline Cleanup. Define what a shoreline is to girls. Key points include:

- The Great Canadian Shoreline Cleanup inspires Canadians across the country to clean up thousands of kilometers of shoreline each year.
- In 2014, Canadians cleaned up over 2,560 km of shoreline and collected almost 140,000kg of litter.

Please note: * indicates information and activities adapted from the Great Canadian Shoreline Cleanup K - 8 Curriculum.

Part A:
LEARNING ABOUT WATER-BASED ECOSYSTEMS

Activity 1: Sound Storm*

- Ask the girls to form a circle and sit on the floor.
- Explain that a storm is coming and perform a series of actions. Once you begin an action, the girl to your right or left will have to copy the action. The girl next to her will do the same, setting off a chain reaction. You can pick whether the direction is clockwise or counter-clockwise.
- Once the action has travelled all the way around the circle and back to you, move onto the next action.
- The sequence of actions are as follows:
    - One finger tap on the floor (light rain)
    - Multiple fingers tap on the floor (rain starting to build)
    - 1 palm on the floor (heavy rain starting to build)
    - 2 palms hitting the floor interchangeably (heavy rain)
    - 2 feet stomping the floor interchangeably (heavy storm)
    - Clapping hands together (storm starting to subside)
    - Rubbing hands together (rain starting to subside)
    - Rubbing fingers together (very light rain)

Activity 2: Walk Through Water*

- Have girls walk continuously in a circle at a slow pace. Ask them to imagine they are walking in light fluffy snow that reaches the tops of their shoes or damp heavy snow that reaches the knees. Ask the girls how their feet feel. Then ask the girls to imagine they are swimming in water. How does their body feel?
- Suggest other forms and sources of water for the group to imitate. Some girls may even provide their own suggestions. Help guide the girls' imagination by describing the feelings and sensations that may be unfamiliar to them.

- Some suggested forms and sources of water include:
  - A swamp
  - A clear, deep lake
  - Bubbles in a sparkling juice drink
  - A muddy riverbank
  - A shallow puddle
  - Waves rippling to shore
  - Steam rising from the kettle
  - Water quickly flowing through a river
  - A calm ocean or rough ocean
  - A creek
  - A waterhole
  - A bog

Water comes in the forms of **vapour** (mist, fog, steam, clouds), **liquid** (water drops, lakes and ponds, puddles, running water and rain) and **solids** (frost, snow and ice). Waterways are bodies of water that can be travelled on, for example oceans, seas and rivers.*

Activity 3: Where is Water?*

MATERIALS: map of community, chart paper, felt pens or markers

- Explain to girls that the topic for today's meeting is water and ask them the following questions:
  - What do you use water for?
  - Why is water important to us?
  - Where does water come from?
  - Where do drains lead?
  - What are waterways?
  - Where are the shorelines/wetlands in our community?
- Guiders could bring a map of their community and point to the shorelines and wetlands near the unit.
- Alternatively, you can play "Where is Water Pictionary" by dividing girls into teams of four.
- Each team will select a girl to go first to be the drawer. Give the drawer on each team a word that is associated with waterways or shorelines (e.g. beach or lake, etc.) and ask them to draw it. The word should be the same for each team.
- The first team to guess what their girl is drawing wins.
- Play as many rounds as you like, having the girls in each group take turn drawing.

Water from toilets, sinks, washing machines, dishwashers and other drains in homes, businesses and buildings are transported through pipes to a local water treatment facilitates, where the water is treated and released back into the local water systems. Water from storm drains, which are found on the streets and sidewalks are used to drain excess rainwater from roadways and walkways. This water is often returned to local waterways (rivers, streams, lakes) untreated.*

Part B: LEARNING ABOUT LITTER

Activity 1: The Shoreline's Dirty Dozen*

MATERIALS: flipchart paper, masking tape, pictures of the dirty dozen (see list on right, and the images on pages 13-15), pictures of animals

- Explain to the unit what "decomposition" is.
- Show pictures of the 12 most commonly found items during shoreline cleanups. Post these pictures on a flipchart paper on the wall. These items are:
  1. cigarettes/cigarette filters
  2. food wrappers/containers
  3. bags (plastic)
  4. caps, lids
  5. cups, plates, forks, knives, spoons
  6. beverage cans
  7. beverage bottles (plastic)
  8. bags (paper)
  9. straws, stirrers
  10. beverage bottles (glass)
  11. tobacco packages/wrappers
  12. cigar tips
- Show decomposition rates to girls (see box on right). Ask the girls to guess which rates belong to which item and have them stick the rates next to the images on the wall.
- Reveal the answers to the girls.
- Show pictures of the animals and plants that inhabit a shoreline or wetland. Explain how the dirty dozen affects the animals and plants in the shoreline/wetland.

Decomposition is different than biodegradation.
Decomposition refers to when a material is slowly broken down into smaller parts through natural or chemical processes. Biodegradation refers to the breakdown of substances by bacteria or other natural means, allowing the material to be reused by the environment.

Decomposition rates:

Object	Time it takes to decompose
Glass bottle	1 million years
Fishing line	600 years
Plastic bottle	450 years
Diaper	450 years
Aluminum can	450 years
Foam buoy	80 years
Styrofoam cup	50 years
Tin can	50 years
Leather	50 years
Nylon fabric	30-40 years
Plastic bag	10-20 years
Cigarette filter	1-5 years
Wool sock	1-5 years
Plywood	1-3 years
Milk carton	3 months
Apple core	2 months
Newspaper	6 weeks
Banana peel	2-5 weeks
Paper towel	2-4 weeks

Activity 2: Travelling Trash*

- Brainstorm suggestions about what kinds of things end up in the ocean.
- Set up the experiments (details below):
  - Ocean currents – Wind
  - Ocean currents – Temperature
  - Shoreline Litter – Lifespan Test
- Conduct each experiment together as a group.
- Discuss the Great Pacific Garbage Patch. Where applicable (and technology allows), consider showing a YouTube video that has footage of the garbage patch, and the impact of the garbage on the aquatic life.

Water currents can be created by wind. They can also be generated by differing temperatures of water coming together. There are regions in the ocean where water can become very cold (and very salty). Because this cold, salty water is much more dense than the other water, it sinks. It then travels to other parts of the ocean; if it reaches a warmer area, the water will warm up and rise to the surface. The rising and falling water is what leads to deep ocean currents.

Experiment A: Ocean Currents – Wind

MATERIALS: Deep baking dish filled halfway with water, four straws, food colouring, paper confetti (punched out using hole punch)

- Explain to girls that the baking dish with water represents the ocean. Have one girl hold one of the straws just above the water on the edge of the dish, and blow gently into the straw. The air coming of the straw represents a 'wind-driven' current. Watch how the water reacts to the wind-driven current.
- Have a second girl stand on the opposite side of the baking dish and gently blow on the water's surface using a straw. Then have both girls blow into the straws at the same time, from opposite ends of the dish, to create a clockwise current of water. Watch what happens when you add a drop of food colouring to the ocean and the wind continues to blow.
- Imagine that the paper confetti represents litter and sprinkle some into the water, while both girls continue to create a wind-current. Explore what happens to the 'litter.'
- Discuss with girls the following questions: What did the wind-driven current do to the litter in the ocean? Is there anywhere for the litter to go? How might this litter affect the animals in the ocean?

In the Pacific Ocean, circular ocean currents carry trash, mostly plastics to one location in the ocean. Estimates vary, but it's reported that this 'Great Pacific Garbage Patch" ranges from the size of Texas to the size of United States. Plastic cannot be broken down by animals or microorganisms, so as a result, plastic (such as the plastic in the Pacific Garbage Patch) won't completely decompose for tens to hundreds of years. It does, however, break down into small particles with exposure to light. Fish and other creatures often mistake this plastic as food and consume it, leading to digestive problems and even death. Birds, fish and other animals can also become trapped in rings or bags.

Experiment B: Ocean Currents – Temperature

MATERIALS: Deep clear baking dish filled halfway with water (use a large dish when possible), ice cubes, two different colours of food colouring, paper confetti, one Ziploc bag with hot water, a rock (to weigh it down the Ziploc bag)

- Place the Ziploc with hot water in one corner of the clear baking dish and the ice cubes at the opposite corner of the baking dish. Place two drops of one colour of food colour near the hot water, and two drops of another colour of food colouring beside the cold water. Watch what happens. You should see the food colouring added to the hot water disperse quickly and stay at the top of the dish, to create uniform colour, while the food colouring next to the ice cubes will sink to the bottom of the tray and will take a much longer time to disperse through the water. This is because the cold water is more dense than the hot water. The particles in the hot water are less dense, and have more energy, and therefore disperse faster, and stay at the top of the dish.
- Now add some paper confetti. This represents shoreline litter that has blown into the ocean. Wait to see whether the confetti is moved by the water. The confetti should gravitate towards the ice cubes.
- Discuss with girls that the movement of water caused by temperature is a current. Ask them what they think the temperature driven current would do to the litter in the ocean.

Experiment C: Shoreline Litter – Lifespan Test

MATERIALS: Four watertight containers filled with water such as a pickle jar or mason jar, four different types of organic and inorganic garbage (small enough to fit in the containers; see examples listed below).

- Place a different type of garbage into each of the containers and close the lids tightly, making sure that water doesn't leak. Have girls guess which litter will break down the fastest, or the slowest.
- Pass out the containers to girls, and have girls simulate movement of water in the ocean by shaking the jars. Have girls shake the jars for three minutes. Then open the jars and examine the degree to which the garbage has broken down. You could illustrate this by trying to remove the garbage from the water. The organic garbage (e.g., muffin wrapper or tissue paper) may already have begun to decompose, making it difficult to take out of the water, while the inorganic waste (e.g., candy wrappers, a bottle cap) may be easily removable from the water, and still in one piece. However, depending on the material you use, it may take the equivalent of a few meetings before you see any of the garbage breakdown.
- Discuss with girls the following questions: What types of garbage break down faster than others? What type of garbage will last the longest in the ocean?

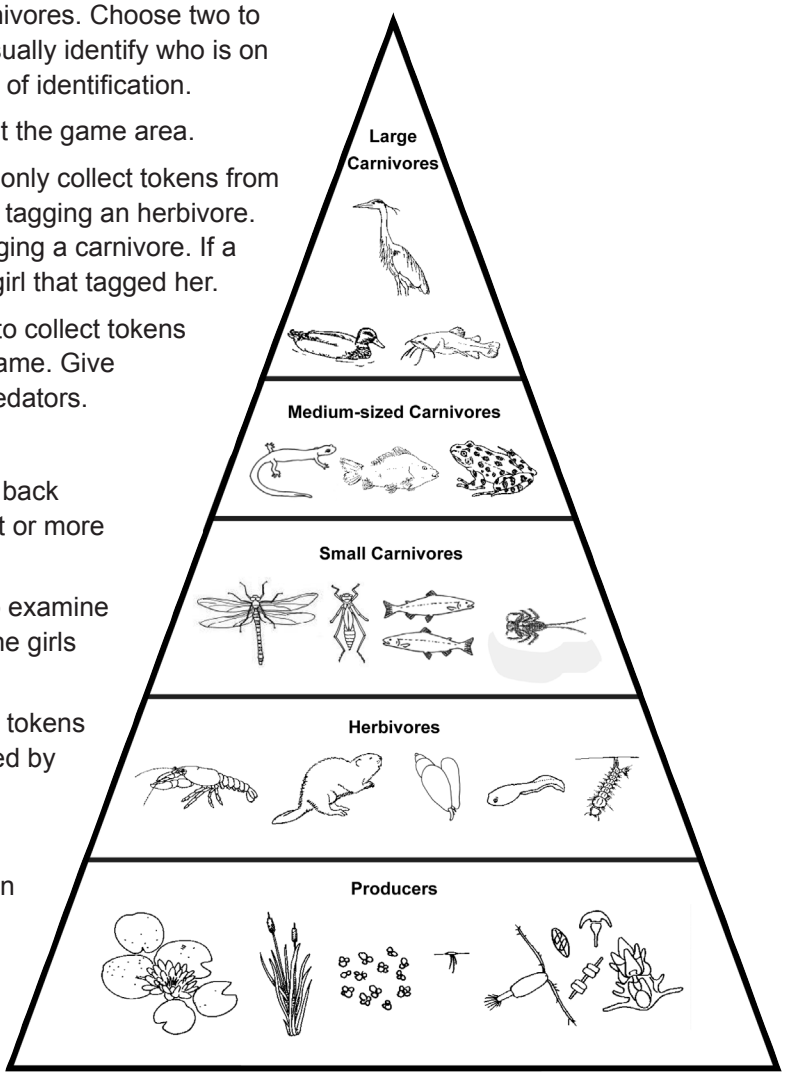
Organic waste is garbage that comes from living organisms and can be broken down by living organisms. Examples include eggshells, fruit and vegetables, napkins and paper towels. Inorganic waste is garbage that is man-made and cannot breakdown naturally. For example, plastic bottles, candy wrappers, pens, spoons etc.).

Activity 3: Herbivore/Carnivore Tag*

MATERIALS: 150-200 tokens, stickers, arm bands

- Prior to the meeting, prepare tokens such as poker chips, popsicle sticks or similar sized markers. Ensure there are enough tokens to have at least 10 tokens per girl. Mark approximately 20% of the tokens with a sticker, or a special marking.
- Review the definitions of herbivore, carnivore and top predator with girls. (See the illustration below on right for an example of a freshwater ecosystem pyramid.)
- Play the game of tag with girls.
- Divide girls into two groups, designating two-thirds of the girls as herbivores and one-third of the girls as carnivores. Choose two to three of the carnivores to be top predators. Visually identify who is on which team using an armband or another form of identification.
- Scatter all of the tokens on the floor throughout the game area.
- Explain the rules of the game. Herbivores can only collect tokens from the ground. Carnivores can only get tokens by tagging an herbivore. Top predators can only obtain tokens from tagging a carnivore. If a girl is tagged, she must give one token to the girl that tagged her.
- Provide herbivores with 30 second head start to collect tokens before the carnivores are allowed to join the game. Give carnivores a 10 second head start from top predators.
- Players cannot be tagged twice in a row.
- After a few minutes, end the game and gather back together. Inform girls that if they collected eight or more tokens, they have collected enough to survive.
- Ask the girls who have eight or more tokens to examine their tokens for stickers/markings. Explain to the girls that the stickers represent pollution.
- Inform girls that those who have three or more tokens with a pollution sticker on it have been poisoned by pollution.
- Potential discussion questions include:
  - What three things did animals need to do in this game to survive? (escape predators, get food, avoid pollution)
  - What strategies did you use when getting food? (stay still, run faster) Do you think animals in an ecosystem use the same strategies?

A **herbivore** is an animal that eat plants. A **carnivore** is an animal that eats other animals. A **top predator** is at the top of the food chain, eats other carnivores and usually doesn't have any natural enemies in the ecosystem.



Freshwater Ecosystem Food Pyramid

- Why were the girls not told about the pollution stickers at the beginning of the game? Do animals have any way of knowing whether the food they are eating is polluted?
- How does a shoreline cleanup change an animal's chance for survival?

Additional game options: Play the game a second time, with girls now aware of the pollution chips. Explore how knowing about pollution changes the strategy of the game OR add in a 'decomposer': If this girl tags someone else, that girl must hand over all of their food chips. The decomposer then gives them back to the environment (by scattering the chips on the floor).

Activity 4: Trash Relay

(Adapted from British Columbia Eco Pak Challenge, 2014).

MATERIALS: various types of garbage (including recyclable and compostable items), rubber gloves, recycling bin, trash bin, compost bin, whistle

- Divide girls into teams of at least three to four girls. Give each team a pair of rubber gloves. Have the teams line up at the start line.
- Place the three bins (recycling, trash and compost binds) at the other end of the room. Divide the garbage so that each time has an equal sized pile. Place the piles half way between the start line and the bins.
- Explain the rules of the race. When the whistle blows, the first girl puts on the pair of gloves, run to the trash pile, picks up one item, runs (or walks depending on the meeting space) to the end of the room and places the item in the correct bin. She should then run back to her team and give the next girl in line the gloves. The relay race continues until all garbage has been sorted.
- Once the relay has been completed, go through the items in the three bins with the girls and determine whether they were sorted appropriately and how many items were placed in the wrong bin.

Part C: CRAFT

If time permits, Guiders can end the meeting with a craft activity

Activity 1: Painting*

MATERIALS: paint, canvas board, paint brushes, Q-tips

- Provide girls with some paint and allow them to paint a picture of a shoreline.
- Challenge them to make a dot painting on some different type of medium other than paper (e.g., canvas board, a piece of fabric, corkscrew board, etc.). Dot painting is when you make a picture out of a pattern of dots using a Q-tip.

Activity 2: Water Collage

MATERIALS: magazines, scissors, glue sticks, paper

- Hand out magazines and scissors to the groups.
- Ask the girls to search through the magazine to find and cut out as many examples as they can find of water in its various forms (liquid water in oceans, lakes or drinking water, water vapour and solid water such as ice cubes.
- Ask the girls to create a water collage.

Activity 3: What Litters our Shores*

MATERIALS: statistics, paper, pencil, poster paper

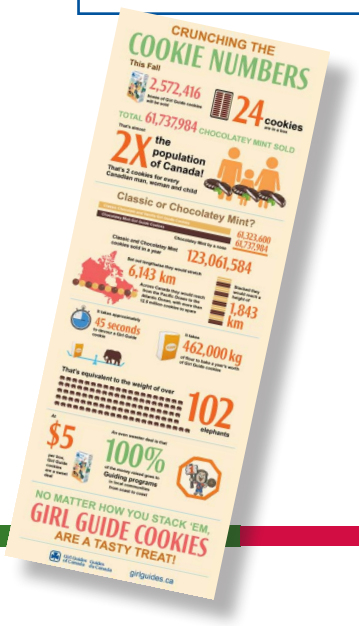
- Divide girls into groups.
- Give each group a statistic from last year's cleanup. (See list on right.)
- Ask girls to come up with a way to represent this visually through an infographic or a pictograph. For example, in 2014, 139,262 kg of litter was cleaned up. This is equivalent to 309 full grown moose. Another example of an infographic is with Girl Guide cookies. It takes 462,000 kg of flour to bake a year's worth of Girl Guide cookies, which is equivalent to 102 elephants.

Results from 2014 cleanup year

Distance cleaned	2,560 km
Garbage bags collected	10,574 bags
Weight of garbage collected	139,262 kg
Number of people collecting	54,163

Dirty Dozen Stats From 2014 – number of items collected

Cigarette butts	329,562
Food wrappers	75,768
Bottle caps (plastic)	37,994
Beverage bottles (plastic)	35,482
Beverage cans	27,500
Other plastic/foam	24,994
Straws/stirrers	24,482
Other plastic bags	23,296
Bottle caps (metal)	20,551
Lids (plastic)	20,077
Grocery bags (plastic)	18,232
Cups and plates (paper)	15,183



Example of an infographic

ACTIVITIES ON COLLECTION DAY (optional):

Here are some activity suggestions that you could consider incorporating into your cleanup day, depending on your event's timeframe.

Activity 1: Noticing the Environment*

- Have girls face the water. Ask them to close their eyes for a minute and listen to as many sounds as they can hear. Then ask girls to open their eyes, and remain silent, looking at as many things as they can.
- Provide girls with the following suggestions to pay attention to during their time of silence:
  - Sounds they heard and what created them
  - How many different living organisms as they can see
  - The elements of the ecosystem
  - Man-made objects
  - The furthest natural element they can see
  - The closest natural element they can see

Activity 2: Nature Sketches*

MATERIALS: paper, pencil, pencil crayons, camera

- Have girls draw pictures of the cleanup site. Girls could choose to draw the same object from different perspectives – from a distance, close to the object, or from a magnified perspective.
- Alternatively, have the girls take artistic photos of the cleanup site or of the trash that they collected. Use different perspectives by taking the photos from underneath or up above or from a different angle.

Activity 3: Mini Scavenger Hunt*

MATERIALS: scavenger hunt list, pencil

- Visit the cleanup site in advance to create a list of potential items that can be found along the shoreline. Sample items include:
  - Something older than you
  - Evidence of human impact on the shoreline
  - Something that will be still here in 100 years
  - Something that is growing
  - Something that is decaying
  - Something that smells surprising
  - Something with a unique texture
  - Something camouflaged
  - Something beautiful
  - Something ugly

Activity 4: Shoreline Hazards

- Together with girls, scan the cleanup site for shoreline hazards. Mark the hazards with flagging tape and review the behavioral expectations around these hazards.

Please note: * indicates information and activities adapted from the Great Canadian Shoreline Cleanup K - 8 Curriculum.

Girl Guides gratefully acknowledges the support of Great Canadian Shoreline Cleanup and Vancouver Aquarium in the development of content and activities.

Dirty Dozen

Cigarettes/
cigarette filters

Food wrappers/containers

Bags (plastic)

Caps, lids

Cups, plates, forks, knives, spoons

Beverage cans

Beverage bottles (plastic)

Bags (paper)

Straws, stirrers

Beverage bottles (glass)

Tobacco packages/wrappers

Cigar tips