



## Resources

### Connecting with the Natural World Junior Division Integrated Curriculum

#### Ministry of Education

Acting Today, Shaping Tomorrow

<http://www.edu.gov.on.ca/eng/teachers/enviroed/ShapeTomorrow.pdf>

Environmental Education – Ministry of Education

<http://www.edu.gov.on.ca/eng/teachers/enviroed/education.html>

Environmental Education: Scope and Sequence of Expectations, 2011 (Elementary Curriculum)

<http://www.edu.gov.on.ca/eng/teachers/enviroed/publications.html>

Growing Success - <http://www.edu.gov.on.ca/eng/policyfunding/growSuccess.pdf>

The Ontario Curriculum Grades 1-8 Science and Technology

<http://www.edu.gov.on.ca/eng/curriculum/elementary/scientec18currb.pdf>

## Professional Organizations

National Science Teachers' Association - [www.nsta.org](http://www.nsta.org)

Ontario Council for Technological Education - [www.octe.on.ca](http://www.octe.on.ca)

Science Coordinators and Consultants of Ontario - [www.sccao.org](http://www.sccao.org)

Science Teachers' Association of Ontario - [www.stao.org](http://www.stao.org)

Scientists in School - [www.scientistsinschool.ca](http://www.scientistsinschool.ca)

## Inquiry

Inquiry Based Science - What does it look like?

[http://www.exploratorium.edu/IFI/resources/classroom/inquiry\\_based.html](http://www.exploratorium.edu/IFI/resources/classroom/inquiry_based.html)

Natural Curiosity - [www.naturalcuriosity.ca](http://www.naturalcuriosity.ca)

## Environmental Organizations and Agencies

Biodiversity Education and Awareness Network - [www.biodiversityeducation.ca/](http://www.biodiversityeducation.ca/)

Canadian Wildlife Federation – <http://www.cwf-fcf.org/>

Central Lake Ontario Conservation Authority - [www.cloca.com](http://www.cloca.com)

Children and Nature Network - [www.childrenandnature.org/movement/naturalteachers/](http://www.childrenandnature.org/movement/naturalteachers/)

David Suzuki Foundation: Nature Challenge for kids - [www.davidsuzuki.org/kids/](http://www.davidsuzuki.org/kids/)

Ducks Unlimited - [www.ducks.ca/resource/education/index.php](http://www.ducks.ca/resource/education/index.php)

Earth Day Canada - [www.earthday.ca/pub/index.php](http://www.earthday.ca/pub/index.php)

Earth Rangers - [www.earthrangers.com](http://www.earthrangers.com)

EcoKids - [www.ecokids.ca/pub/index.cfm](http://www.ecokids.ca/pub/index.cfm)

EcoMentors - [www.ecomentors.ca/](http://www.ecomentors.ca/)

Environment Canada - [www.ec.gc.ca/](http://www.ec.gc.ca/)

STAO/OTF

Environmental Education Ontario - <http://www.eeon.org/>

E-Zone [www.ene.gov.on.ca/environment/en/ezone/index.htm](http://www.ene.gov.on.ca/environment/en/ezone/index.htm)

Green Learning - [www.greenlearning.ca/](http://www.greenlearning.ca/)

iNaturalist - <http://www.inaturalist.org/>

Journey North - [www.learner.org/jnorth/](http://www.learner.org/jnorth/)

Kids for a Living Planet - [http://wwf.ca/takeaction/teachers\\_kids/kids/](http://wwf.ca/takeaction/teachers_kids/kids/)

Monarch Teachers' Network - [www.eirc.org/website/Programs-and-Services/Monarch-Teacher-Network/](http://www.eirc.org/website/Programs-and-Services/Monarch-Teacher-Network/)

Monarch Watch - <http://monarchwatch.org>

Monarch way Stations - <http://www.monarchwatch.org/waystations/>

Monarchs in the Classroom - [www.monarchlab.org](http://www.monarchlab.org)

Ontario Agri-Food Education - [www.oafe.org/](http://www.oafe.org/)

Ontario Biodiversity Council - [www.ontariobiodiversitycouncil.ca/](http://www.ontariobiodiversitycouncil.ca/)

Ontario EcoSchools - [www.ontarioecoschools.org/index.html](http://www.ontarioecoschools.org/index.html)

Ontario Ministry of the Environment - <http://www.ene.gov.on.ca/environment>

Ontario Nature - [www.ontarionature.org](http://www.ontarionature.org)

Ontario Society for Environmental Education = <http://osee.ca>

Parks Canada - [www.pc.gc.ca/index\\_e.asp](http://www.pc.gc.ca/index_e.asp)

Project Noah – [www.projectnoah.org](http://www.projectnoah.org)

Project Wild - [http://www.cwf-fcf.org/en/educate/ed\\_resources/for-educators/project-wild.html](http://www.cwf-fcf.org/en/educate/ed_resources/for-educators/project-wild.html)

Project Wild Canada - <http://www.wildeducation.org/>

Richard Louv - <http://richardlouv.com>

Robert Bateman for Kids - <http://www.robertbateman.ca/kids/GetToKnowPage.htm>

Schools for a Living Planet - <http://schools.wwf.ca/>

Sharing Voices - <http://www.sharingvoices.org/>

The Council for Outdoor Educators of Ontario - <http://www.coeo.org/>

Wings of Paradise - [www.wingsofparadise.com/](http://www.wingsofparadise.com/)

World Wildlife Fund Canada - [www.wwf.ca/](http://www.wwf.ca/)

## Art

Andy Godsworthy

<http://andygoldsworthy.tripod.com/>

<http://www.goldsworthy.cc.gla.ac.uk/>

[http://www.rwc.uc.edu/artcomm/web/w2005\\_2006/maria\\_Goldsworthy/TEST/index.html](http://www.rwc.uc.edu/artcomm/web/w2005_2006/maria_Goldsworthy/TEST/index.html)

Daphne Odjig - <http://www.daphneodjig.com>

David Hockney - <http://ifilmography.posterous.com/-david-hockney-art-created-with-iphoneipad-br>

Group of Seven - <http://www.groupofseven.ca/>,

<http://www.mcmichael.com/collection/seven/index.cfm>

Norval Morrisseau and Anishinabek "Woodland School" Artists -

<http://www.mcmichael.com/exhibitions/legends/current.cfm>

Robert Bateman - <http://www.robertbateman.ca/>

## Blogs for Students

<http://kidsblogs.nationalgeographic.com/blogs/>

<http://washingtonscienceblog.blogspot.ca/>

<http://www.studentsoftheworld.info/sites/pages.php>

<http://www.onlineschools.org/study-hall/100-best-book-blogs-for-kids-tweens-and-teens/>

<http://kidblog.org/home/>

[http://www.hellokids.com/t\\_2856/blogs-for-kids](http://www.hellokids.com/t_2856/blogs-for-kids)

[http://www.simplesite.com/pages/receive.aspx?partnerkey=ffgoogle:CA\\_Search\\_Blog\\_PM\\_Blogs&target=ftp3:crea](http://www.simplesite.com/pages/receive.aspx?partnerkey=ffgoogle:CA_Search_Blog_PM_Blogs&target=ftp3:crea)

## Resources from Activities

### Grade 4 – Habitats and Communities

#### Lesson 1 – What is My Habitat

<http://idahoptv.org/dialogue4kids/season10/habitat/facts.cfm>

<http://www.bbc.co.uk/nature/habitats>

[www.wikihow.com/Take-Action-to-Help-the-Environment-\(Kids\)](http://www.wikihow.com/Take-Action-to-Help-the-Environment-(Kids))

[www.ecokids.ca/pub/take\\_action/campaigns/act\\_for\\_the\\_planet/index.cfm](http://www.ecokids.ca/pub/take_action/campaigns/act_for_the_planet/index.cfm)

<http://www.learner.org/interactives/collapse/>

#### Lesson 2 - Create a Habitat Map

Tourist map examples: search Google images using search terms: trail guide, trail map, conservation area map, tourist map + community or region of your choice (e.g., Ontario, Toronto, etc.)

The Royal Ontario Museum has a “create your own field guide” that allows students to specify their region <http://www.rom.on.ca/ontario/fieldguides.php>

The University of Michigan web site BioKids has some field guides that are largely applicable to Ontario habitats available for download at no charge: <http://www.biokids.umich.edu/guides/>

Canadian Geographic has animal facts searchable by species:

<http://www.canadiangeographic.ca/kids/animal-facts/animals.asp?region=ont>

If you wish to purchase field guides, Golden Guides are child friendly.

For assistance using GPS, use the search term “GPS tutorial.”

### **Lesson 3 Invaders! Ladybug Field Study**

[www.lostladybug.org](http://www.lostladybug.org)

[www.lostladybug.org/identification-tools-1083.php](http://www.lostladybug.org/identification-tools-1083.php)

<http://everything-ladybug.com/ladybug-facts.html>

[www.cog.ca/directory](http://www.cog.ca/directory)

<http://www.organiccouncil.ca/directory>

<http://www.biokids.umich.edu/critters/Coccinellidae/>

<http://www.monarchwatch.org/>

<http://www.naturewatch.ca/english/>

<http://www.conservation-ontario.on.ca/about/cas.html>

<http://www.letstalkscience.ca/educators/science-outreach.html>

## **Grade 4 Rocks and Minerals**

### **Lesson 2 - Identification and Classification of Rocks**

<http://atlas.nrcan.gc.ca/auth/english/maps/environment/geology/majorrockcategories>

<http://www.geolsoc.org.uk/rockcycle>

<http://boreal.com/common-rock-collection/p/IG0023159/>

<http://magma.nationalgeographic.com/ngexplorer/0605/quickflicks/>

<http://geology.com/rocks>

### **Lesson 3 - Discovering Human Made Items Which Contain Rocks and Minerals**

<http://www.britannica.com/EBchecked/topic/136794/copper-processing/81931/Extraction-and-refining>

<http://atlas.nrcan.gc.ca/site/english/maps/economic/rdc2001/rdcmin>

Encyclopedia Britannica pictures of copper extraction and processing

<http://www.britannica.com/EBchecked/topic/136794/copper-processing/81931/Extraction-and-refining>

Natural Resources Canada map of the towns in Canada which are reliant on natural resources

<http://atlas.nrcan.gc.ca/site/english/maps/economic/rdc2001/rdcmin>

### **Lesson 4 - Repurposing Items**

<http://familyfun.go.com/crafts/can-do-robots-674831/>

[http://www.makingfriends.com/landfill\\_rescue.htm](http://www.makingfriends.com/landfill_rescue.htm)

<http://crafts.kaboose.com/recycling-or-reusing-materials-to-make-new-crafts.html>

<http://myzerowaste.com/2010/10/5-ways-to-reuse-your-tetra-pak-cartons/>

<http://www.youtube.com/watch?v=JIFeRMvNXKA>

## **Additional Sites – Rocks and Minerals**

<http://www.nasa.gov/audience/foreducators/nasaclips/search.html?terms=&category=1000>

<http://videos.howstuffworks.com/hsw/17356-basics-of-geology-the-rock-cycle-three-types-of-rock-video.htm>

<http://www.42explore.com/rocks.htm>

<http://42explore.com/salt.htm>

<http://www.cotf.edu/ete/modules/mse/earthsysflr/rock.html>

<http://www.windows.ucar.edu/tour/link=/earth/geology/geology.html&edu=elem>

<http://www.ontariominerals.com/>

<http://www.rocksandminerals.com/menu.htm>

[http://cgc.rncan.gc.ca/edumat\\_e.php](http://cgc.rncan.gc.ca/edumat_e.php)

<http://www.minsocam.org/MSA/K12/rkcycle/rkcycleindex.html>

<http://www.mcgrawhill.ca/school/applets/bcscience7/rock//index.htm>

<http://www.fi.edu/fellows/fellow1/oct98/index2.html>

<http://www.learner.org/interactives/rockcycle/index.html>

<http://www.brookweston.org/Learning/Science/Rocks/Default.aspx>

<http://www.oum.ox.ac.uk/thezone/rocks/index.htm>

<http://www.oum.ox.ac.uk/thezone/minerals/index.htm>

<http://www.kidsgeo.com/geology-for-kids/>

<http://www.museevirtuel-virtualmuseum.ca/index-eng.jsp>

<http://fossweb.com/modulesK-2/PebblesSandandSilt/index.html>

<http://fossweb.com/modules3-6/EarthMaterials/index.html>

<http://www.canadiangeographic.ca/cgKidsAtlas/rock.asp>

<http://www.childrensmuseum.org/geomysteries/mysteries.html>

<http://www.rocksforkids.com/>

<http://library.thinkquest.org/J002289/>

<http://teacher.scholastic.com/dirtrep/erosion/index.htm>



## **Songs**

<http://www.songsforteaching.com/geologyearthscience.htm>

<http://www.kidsknowit.com/educational-songs/play-educational-song.php?song=Rocks%20And%20Gems%20And%20Minerals>

## **Grade 5 Conservation of Energy**

### **General**

Energy and the Environment - <http://oee.nrcan.gc.ca/calendar-club/activity/17105>

Green Learning - <http://www.greenlearning.ca/>

Ontario EcoSchools – Energy Guides - <http://www.ontarioecoschools.org/index.html>

EcoKids - <http://www.ecokids.ca/pub/index.cfm>

Ontario Ministry of Energy - <http://www.energy.gov.on.ca/en/>

## **Lesson 3 - Conservation of Energy and Resources Blog**

### **Blogs to investigate:**

<http://kidsblogs.nationalgeographic.com/blogs/>

<http://washingtonscienceblog.blogspot.ca/>

<http://www.studentsoftheworld.info/sites/pages.php>

<http://www.onlineschools.org/study-hall/100-best-book-blogs-for-kids-tweens-and-teens/>

### **Sites to help set up a blog for students:**

<http://kidblog.org/home/>

[http://www.hellokids.com/t\\_2856/blogs-for-kids](http://www.hellokids.com/t_2856/blogs-for-kids)

[http://www.simplesite.com/pages/receive.aspx?partnerkey=ffgoogle:CA\\_Search\\_Blog\\_PM\\_Blogs&target=ftp3:crea](http://www.simplesite.com/pages/receive.aspx?partnerkey=ffgoogle:CA_Search_Blog_PM_Blogs&target=ftp3:crea)

## **Lesson 5 - Solar, Wind and Water Energy Inquiries**

### **Solar Energy Inquiry Projects:**

<http://www.re-energy.ca/solar-oven>

<http://www.builditsolar.com/Projects/Educational/NCKidsSolarAct-1.pdf>

<http://www.altenergyhobbystore.com/marshmallow%20roaster.htm>

### **Wind Energy Inquiry Projects:**

<http://www.re-energy.ca/wind-turbine>

[http://www.windstuffnow.com/main/one\\_hour\\_projects.htm](http://www.windstuffnow.com/main/one_hour_projects.htm)

<http://www.picoturbine.com/>

### **Water Energy Inquiry Projects:**

<http://www.re-energy.ca/hydro-generator>

### **Others:**

<http://www.re-energy.ca/biogas-generator>

Adventures in Renewable Energy Technology - [www.re-energy.ca/](http://www.re-energy.ca/)

Ontario Ministry of Energy - [www.mei.gov.on.ca/en/index.php](http://www.mei.gov.on.ca/en/index.php)

Geothermal Energy - [www.nextenergy.ca/default.php](http://www.nextenergy.ca/default.php)

## **Lesson 6 - Governments, Energy and the Environment**

<http://www.ontarioliberal.ca/OurPlan/Platform.aspx>

<http://www.itstimeforgreen.ca/>

<http://www.ontariopc.com/>

<http://ontariondp.com/en/>

### **Future Wheels:**

<http://www.emergentfutures.com/wpdl/Emergent%20Futures%20Consequence%20Wheel%20Tool%20Download.pdf>.

<http://www.ontarioliberal.ca/OurPlan/Platform.aspx>

<http://www.itstimeforgreen.ca/>

<http://www.ontariopc.com/>

<http://ontariondp.com/en/>

<http://oee.nrcan.gc.ca/calendarclub/lessons/3881>

<http://www.emergentfutures.com/wpdl/Emergent%20Futures%20Consequence%20Wheel%20Tool%20Download.pdf>

## **Grade 6 Biodiversity**

### **Lesson 3 - Create Your Own Creature: A Lesson Celebrating Diversity**

Lanting, Frans, *BIODIVERSITY The Web of Life That Supports Us All*. Supplement to National Geographic Magazine, National Geographic, January 2011.

*Natural Curiosity*, The Laboratory School at the Dr. Eric Jackman. Institute for Child Study, University of Toronto, OISE, Oshawa, ON 2011

OBIS Outdoor Biological Instructional Strategies, Invent an Animal Activity,  
<http://www.outdoorbiology.com/node/54>.

<http://www.outdoorbiology.com/node/54>

### **Lesson 4 - Virtual Collections: A Classification Activity**

Kidport reference Library, Kidport, 1998-2012.

<http://www.kidport.com/reflib/science/animals/animalindexv.htm>

[http://www.biology4kids.com/files/plants\\_main.html](http://www.biology4kids.com/files/plants_main.html)

Canadian Photographers Websites:

<http://www.canadiannaturephotographer.com/featuredphotographer.html>

Wildflowers in the **Canadian** Rockies - <http://www.canadiannaturephotographer.com/halleflygare.html>

Marriot, John, <http://www.wildernessprints.com/>

Robert Bateman - <http://www.robertbateman.ca/kids/GetToKnowPage.htm>

Rader, Andrew, *Biology 4 Kids: Plants*, Andrew Rader Studios, 1997-2012

## Lesson #5 - Miniature Investigative Nature Trail

Connors, Lisa Marie, *Trail Blazers: Fourth-Grade Students Create Digital Field Guides for Visitors to the School's Nature Trail*, Science and Children, v49 n4, pg 46-50, Dec 2011. <http://www.nsta.org>

Ontario's Biodiversity Strategy: "Protecting What Sustains Us"

[http://www.mnr.gov.on.ca/en/Business/Biodiversity/2ColumnSubPage/STEL02\\_166816.html](http://www.mnr.gov.on.ca/en/Business/Biodiversity/2ColumnSubPage/STEL02_166816.html)

## Lesson 6 - Invasive Species Investigation

[http://www.mnr.gov.on.ca/en/Business/Biodiversity/2ColumnSubPage/STDPROD\\_085427.html](http://www.mnr.gov.on.ca/en/Business/Biodiversity/2ColumnSubPage/STDPROD_085427.html)

[http://dnr.wi.gov/invasives/fact/clovers\\_white.htm](http://dnr.wi.gov/invasives/fact/clovers_white.htm)

<http://www.omafra.gov.on.ca/english/crops/hort/news/hortmatt/2005/10hrt05a4.htm>

[http://www.ontarioinvasiveplants.ca/index.php/other\\_sites](http://www.ontarioinvasiveplants.ca/index.php/other_sites)

<http://www.mapleinfo.org/hm/boxm.cfm>

<http://goldenhillplants.com>

[http://www.weedinvasion.org/pdfs/Identification/weed\\_identification\\_relay.pdf](http://www.weedinvasion.org/pdfs/Identification/weed_identification_relay.pdf)

[http://www.nanaimo.ca/assets/Departments/Parks~Rec~Culture/Parks/invasive\\_plants.pdf](http://www.nanaimo.ca/assets/Departments/Parks~Rec~Culture/Parks/invasive_plants.pdf)

[http://www.toronto.ca/trees/pdfs/Fact\\_3\\_Controlling\\_Invasive\\_Plants.pdf](http://www.toronto.ca/trees/pdfs/Fact_3_Controlling_Invasive_Plants.pdf)

<http://www.naturalbiodiversity.org/kids/teachers.html>

<http://www.ofah.org/> the Ontario Federation of Anglers and Hunters

[http://www.weedinvasion.org/pg\\_about.php](http://www.weedinvasion.org/pg_about.php)

<http://www.mnr.gov.on.ca/en/Business/Biodiversity/index.html>

[http://www.mnr.gov.on.ca/en/Business/Biodiversity/2ColumnSubPage/STDPROD\\_068705.html](http://www.mnr.gov.on.ca/en/Business/Biodiversity/2ColumnSubPage/STDPROD_068705.html)

<http://www.invasivespeciescentre.ca/About.aspx>

<http://www.ontarioinvasiveplants.ca/>

<http://www.wildlifeforever.org/invasive-species?gclid=CKLlk8mIkLICFYk-MgodxxsAHQ>

[www.wildlifeforever.org](http://www.wildlifeforever.org)

<http://beatymuseum.ubc.ca/>

## Written Resources

Peterson, Roger Tory and Margaret McKenny. *A Field Guide to Wildflowers of Northeastern and Northcentral North America*. Boston: Houghton Mifflin Company, 1968. (or newer version)

Spellenberg, Richard. *National Audubon Society Field Guide to North American Wildflowers, Western Region*. 2nd ed. New York: Knopf, 2001.

Weed identification guides from local extension offices or weed control departments of provincial and federal agencies.

## Personal and Organizational Resources:

Paul Abell, Toronto representative of [www.arocho.ca](http://www.arocho.ca), organization for stewardship of resources working in Toronto and neighbouring areas to control invasive species. He will visit your classroom as an introduction to having your students work on a local project with him to control invasive species.

Contact information:

A Rocha Canada

19353 16th Avenue

Surrey, British Columbia V3S 9V2 [arocho.ca](http://arocho.ca)

Ministry of Natural Resources, Invasive Species Centre, **Terrestrial Invasion Ecology Lab, Algoma University**, contact: Albert King, Forest Management Branch, 705-945-6718., Kevin Hemsworth, Algoma University, 705 -949-2301 ext. 4120.

Greater Toronto Area

Paul Abell, Stewardship Coordinator

647-969-0259

[paul.abell@arocho.ca](mailto:paul.abell@arocho.ca)

## Lesson 7 – Biodiversity Garden - Culminating Activity

<http://www.growingthenextgeneration.com/agrium-games/quiz/index.htm>

<http://www.kidsgrowing.ca>

## Additional Ideas

What If?

[www.grahamcurry.ca](http://www.grahamcurry.ca)

## Suggested iPad Apps

### Animals, Animal Tracks

- Audubon Field Guide
- My Nature Tracks

### Bird Identification

- Audubon Field Guide
- iBird Canada
- Birds North America

### Tree identification

- Audubon Field Guide
- Tree Watch
- LeafSnap
- My Nature Tree Guide

### Bugs, butterflies

- Audubon Butterflies
- Bugsdb

### Flowers

- Audubon Field Guide
- Flora Folio
- Flowers

### Invasive Species

- What's Invasive

### Nature Projects

- iNaturalist
- Wildlab Bird
- iBord Canada
- Project Noah

### Rocks and Minerals

- Rocks
- Minerals
- Gems and Minerals
- Rockhound
- Rocks and Gems

## Utilities, Productivity

- Notes
- Recorder
- Voice Recorder
- Voice Memo
- Dragon Dictation
- Idea Sketch
- Sticky Notes
- Popplet
- Smartnote
- Whiteboard
- Pages
- Keynote
- iMovie
- iMessage
- Skype

## Navigation, Scavenger Hunts

- Motion X
- ArcGIS
- PathAway
- Scavenger
- iSpy
- Geohunt
- Geocaching

## Art

- Sketch Book
- Brushes
- Art Studio
- Doodle Buddy
- Lifecards
- iCard Maker
- Doink

## Graphic Novels

- ComicBook!
- Strip Designer

## Carnivore vs. Herbivore Activity

### Program Overview

In this program, participants are involved in a game of tag which imitates an ecosystem of predator-prey relationships. By assuming the roles of herbivores and carnivores, learners must survive by seeking out food and water, as well as watching out for (carnivores if they are herbivores and) impacts of disease, elements and humans. This program reinforces the concepts of *habitat, the provision of basic needs using food and water, and teaching students to work together to get to a common goal.*

Participants will:

- review concepts such as *an ecological pyramid (using carnivores and herbivores), habitats and ecosystems, and basic needs for animals to survive.*
- *Have students know what an ecological pyramid is*
- Identify both positive and negative impacts of humans on animals, their habitat, and their survival
- Appreciate and experience the hardships that wildlife encounter in their daily struggle to survive

### Materials

ITEM(S)	Importance
Assorted pinnies (Red and yellow)	Difference of teams (Carnivores + Herbivores)
Life bracelets (pipe cleaners)	Show how many lives an animal (student) has
Water and food popsicle sticks	3 water and 2 food returned to a Mother Nature will give animal back a life
Boundary Signs (pylons/Markers)	Anyone passed this line will become "road kill"
6 Water guns	Elements, Human Impact/ Poacher, Disease/Illness will use to "attack" animal
3 Zip lock Bags	Used to hold type of Mother Nature's sticks
3 Buckets	Used to hold the sticks traded in for lives



## Schedule

This is a 45 minute (approximately) program. The timing listed below is approximate and can be adjusted based on such things as participants' prior knowledge, age of the participants, weather, and so on.

Information behind the game	5 minutes in the classroom
Introduction	5 minutes where activity will take place
Activity (in playing area)	30 minutes where activity takes place
Follow Up/Discussion	5 minutes where activity takes place

## Safety

What hazards may be encountered?

- Participants going out-of-bounds
- Uneven terrain including obstacles such as tree stumps, fallen logs
- Branches at eye level
- Biting/stinging insects
- Slippery conditions –mud
- Tripping, tackling, shoving, etc. from team mates. BIG no no

## Preparation

**Step 1:** Prepare pinnies. Take the total number of participants you have and make approximately 2/3's herbivores (yellow pinnies). The rest of the students are carnivores (red pinnies). Then one of the three counselors will be either Elements, Human Impact (Poacher or Environmentalist), or Disease/ Illness. The last three will be Mother Nature.

**Step 2:** Disperse life rings (pipe cleaners), according to the breakdown you calculated in Step 1. Use this chart to guide you:

Herbivores	5 bi-colored pipe cleaners
Carnivores	2 single colored pipe cleaners

## Lesson Plan

### A) Introduction

For any healthy ecosystem, you need to have plants, herbivores, and carnivores. In each system, an animal will know how to get basic needs such as food and water and all of these animals will follow an ecological pyramid. \*Draw out an ecological pyramid\*. Explain it (herbivores at bottom, carnivores on top, etc.)

Provide the class with an overview of the activity: *Today each of you will be taking on the role of an animal. Your challenge is survive by finding food and water while avoiding various threats in your habitat.*

By making reference to the pyramid, introduce participants to each of the animal roles. Ask them to provide a name and definition for all the animals. *Herbivores are plant-eaters, carnivores are meat-eaters.* Discuss with the class the pyramid of numbers and what it represents. Why there are more herbivores than carnivores? Why are there so few carnivores? Finally, discuss the effects of human impact, very quickly.

Next explain **How to Play the Game:**

\* suggestion: have participants hold questions until the end of the explanation

- Each participant will wear a pinnie which depicts their animal. They will also receive some life bracelets, (5 for herbivore, 2 for carnivore) to represent a population of animal.
- **Herbivores.** Show an herbivore piny and herbivore life bracelet. Next demonstrate how to collect herbivore food and water. Herbivore food is represented by a Popsicle stick with a red dot on it, while water is represented by a blue dot on it. There are three locations in the playing area where the students may obtain both the food and water. When an herbivore finds a Mother Nature, he/she must ask for it. Mother Nature will put a food and water popsicle stick behind his/her back and the student will pick a hand and whichever they pick is the one they get. Like Carnivores, herbivores need to trade in 2 foods and 3 waters to get an extra life. Participants have to go to each Mother Nature once before they can return to a previous Mother Nature (for example, you can't go to the first Mother Nature until you have been to the next two). (We will know where the students have been because the popsicle sticks will have a different number of dots depending on which Mother Nature (first will have 1 water/food dot, second will have 2 water/food dots, etc)).
- **Carnivores.** Show a carnivore a piny and a carnivore life bracelet. As meat-eaters, they are not interested in the herbivore food popsicle sticks, therefore, when they get to Mother Nature, Mother Nature will have a water popsicle in one hand and nothing in the other hand (and the carnivore will guess which hand) and in order to collect food, carnivores must pursue and tag prey as described above. The tagged prey will give up one of their live bracelets to the carnivore. Like herbivores, carnivores can get more life bracelets, if they can give a Mother Nature: 2 food bracelets and 3 water popsicles.
- **Mother Nature.** 3 students spread out throughout the area. When an animal comes to them, depending on their type herbivore or carnivore, MN will have them pick a hand with their corresponding popsicles. If an herbivore comes one hand is food, the other is water; and if a carnivore comes one hand is water, the other is nothing. If an animal comes to Mother Nature with 2 food bracelets/ popsicles and 3 water popsicles, you must give them a life bracelet. (As

explained above, bi-colored are for herbivores and solid colors are for carnivores). Mother Nature will also give out a single life if an animal comes with no lives left.

- **Disease & Illness.** One student will be playing non-animal roles in the game. Disease will go around squirting animals with a water gun, infecting an animal and instantly taking one of its lives away. The animal must walk over to you and give one of his/her life bracelets. The disease represents the abiotic factor in any ecosystem that can cause disastrous effects.
- **Elements.** Another student will play the role of Elements, representing such weather events as floods, lightning, etc. Elements will go around squirting animals with a water gun, infecting an animal and instantly taking one of its lives away. The animal must walk over to you and give one of his/her life bracelets. The elements represent the abiotic factor in any ecosystem that can cause disastrous effects to any ecosystem.
- **Human Impact (Poachers & Environmentalist).** Another student will play the role of Human Impact, representing the positive and negative of how humans have affected or are affecting ecosystems. In this game, Human Impact will either squirt an animal with a water gun or give a life bracelet to the animal. Depending on the mood of Human Impact, he/she will give or take the life of animal.

#### Carnivore to Herbivore catching

- Tagging should be kept clean. All that is needed is a one-handed touch. It's not needed for students to push, shove, tackle, etc.
- If a carnivore has touched an herbivore, they are off limits to other animals and cannot be touched until the exchange is finished. When the exchange has ended, animals get 5 seconds to get away before a new predator can pursue. This way, carnivores will not attack a single herbivore and steal all his/her lives away.
- Carnivores cannot "eat" other carnivores, and herbivores cannot "eat" other herbivores.
- Carnivores cannot catch the same herbivore in a row. Carnivores must catch someone in between.
- Carnivores are allowed to hide around Mother Nature to catch herbivores.

#### **Instructions & Rules to be Given Out, Before Activity Starts**

- Walk to the playing area. With the group gathered in a circle, make sure to highlight the importance of playing safely. Make sure everyone is careful of potential obstacles such as prickly bushes, tree branches, etc. If a participant becomes injured during the game, they must stop playing and find a counselor to help or a friend to help them get to a counselor.
- Discuss boundaries. Make sure everyone knows what the boundaries are and to be careful of them and not to pass them.

#### **Activity**

The herbivores are allowed to run off first, then the carnivores, and finally the counselors. This gives everyone a fair chance to run away. There should be a minimum of 30 seconds in between. After playing for approximately 30 minutes, have everyone meet back

### **Follow-Up and Collection of Equipment**

Once all the participants have returned to the initial sitting area or predetermined spot to meet back, discuss with the students and what they thought. First, find out who won by counting all the lives gained or stolen or even the student with the most life bracelets. Then find out how many water and food popsicles they were able to get. Next, see how they thought the game went and what they found was difficult to do. Ask the students why they thought they needed more water than food and explain the importance of water. Lastly, find out if they liked it or disliked the game (this can help with helpful feedback to provide better improvements for the next time this game is played).

### Equipment Collection

Make sure the students give back the pinnies, life bracelets, and food and water popsicle sticks to the counselors and walk back to the area of the next event.

Adapted from: Toronto Region Conservation Authority "Instincts for Survival"

**Science at a Run – see separate file**

Permission has been granted by Sherri Owens to include this as a resource - [sherri@campkawartha.ca](mailto:sherri@campkawartha.ca)