



Understanding Ecology

What is Ecology?

The word ecology is formed from two Greek words:

oikos = ecos - which means house

logy - which means the study of

Ecology is the study of how living things and the world around them interact.

For example, a **scientist** called an **ecologist** might study a living **organism**, like a beaver. How does the beaver survive in the place where it lives? Where it lives is called **habitat**.



What's really great is that the beaver also helps the whole **ecosystem** to survive.

The different **species** (or types) of living things, like the beaver, interact with nonliving things like water, air and rocks to form an ecosystem. Remove any part, such as the plants, the water or the beavers, and the whole system changes.

For example, a whole **wetland** ecosystem might not exist if beavers didn't chew down trees and make dams that stop the water that helps create wetlands. Trying to understand the many interactions is



ecology and this is what you'll have fun doing with the activities in this newsletter.

Keystone Species

Do you know what we call the curved shape below? It's an arch. People have been building stone arches for their beauty and strength for thousands of years.



But what do they have to do with ecology? There is one stone in an arch - called the **keystone** - that locks all the other stones in place. Can you guess which stone is the keystone?

If you guessed the top one, you're right! Just like the keystone in an arch, a keystone species is an organism that is vital to the stability of an ecosystem. If the keystone species is in trouble, the whole ecosystem where it lives could be in trouble too. Keystone species help keep their ecosystems from falling apart like an arch without a keystone.

Keystone species fall within one of three sections:

Predator - help control growth in population by eating different animals or plants. For example, if the sea star is removed from the ecosystem, the mussel population explodes uncontrolled, driving out most other species.

Mutualist - organisms that participate in mutually beneficial interactions, without which they couldn't survive.

Engineer - that transform a territory or help provide nutrients and water to a territory.

Beavers are an engineer keystone species. Do you know why? That's right, because they alter the environment by building dams.

Conservation is in Our Hands

Humans play a role in the environment.

One important role we play is to protect the environment and its native plants, trees, and animals. These plants, trees and animals know how to live in our climate of eastern Washington, where it rains, snows and the wind blows. But removing them or allowing them to die, can lead to negative effects on our environment like erosion, increased runoff and loss of inhabitable lands. Protect our environment, keep it healthy, and it can withstand the forces of Mother Nature.

This spring, talk with your family and see what you can do to help protect our air, land and water.

*Ecology and keystone content and arch image courtesy of The EverGreen Twins Activity Book by Rick Reynolds.
Beaver content, dam activity and images courtesy of The Lands Council.*

Leaving it to the beaver!

The Lands Council—a non-profit organization based in Spokane is “leaving it to the beaver!”

This means letting beavers do what they do best: build dams that provide important ecosystem benefits. Beavers are a keystone species and a crucial part of healthy watersheds. Why are they important? Water is stored in ponds behind beaver dams as well as in the groundwater surrounding each pond. The water slowly leaks over the year, providing an excellent source of late-season water flow. Beaver activity also restores wetland areas, filters water of impurities, and provides habitat for birds, fish, and amphibians.



In the 1800's, there were over 2 million beaver in the state of Washington. European colonists trapped beavers for their valuable fur and reduced beaver numbers to several thousand. Re-introducing beaver to the streams of eastern Washington is a creative solution that will help store water, make our water cleaner, and create valuable wetlands and wildlife habitat.

By setting live “suitcase” traps (baited with willow, aspen, and cottonwood branches) along the water’s edge, the Lands Council’s “team beaver” removes beavers from places where they are considered a “nuisance” and relocates the animals to places where people want them. Since beaver are nocturnal, traps are set in the evening and checked the following morning. Because beaver families are very tight, “team beaver” works tirelessly to trap and relocate a whole family...sometimes up to 9 beaver of different ages and sizes!

The beavers are taken to a temporary holding pen where they splash around in a water-filled trough and cuddle together in a plastic pet igloo. On relocation day, “team beaver” gently corrals the beavers into cages and drives the animals to their new home to set them free! Data is collected on streamside vegetation, water quality, velocity, and even water quantity before and long after relocation to measure and understand how beavers are changing and improving the ecosystem.

For more information about The Lands Council’s Beaver Solution, visit <http://www.landscouncil.org/beaversolution/>.

Community Calender

April

- 21 **Earth Day Street Fair**, Spokane - Main & Browne
10a-4p, free
- 22 **REI-Dishman Hills Service Day**
1-4p, free - Tree planting, trail building, trash clean-up,
visit www.rei.com/event/32772/session/41035 to register.
- 28 **Arbor Day & Compost Fair**, Finch Arboretum
11a-2p, Free

May

- 10 **Water Resource Center Open House**, 1004 N. Freya St.
2-7p, free
- 12 **Turnbull National Wildlife Refuge Work Party**
9a-12p, free - Tree planting, fence building, call 235-4723
to register.
- 19 **Turnbull National Wildlife Refuge Spring Festival**
8a-3p, free - Nature hikes, tours, kids’ activities, call 235-
4723 for more information.

June

- 24 **Discover Riverside State Park**
10a-4p, free - Fun activities for the whole family.

Other Pacific Northwest Keystone Species

Grizzly bear - Considered an *engineer keystone species* because they transfer nutrients from the oceanic to the forest ecosystem. The bears capture salmon who swim from the ocean up rivers to spawn. The bears carry the fish onto dry land to eat. The bears disperse the nutrients through their feces and by leaving half eaten fish to decompose on the forest floor.

Sea otter - Considered a *predator keystone species* that keep sea urchin populations in control. Sea urchins feed on kelp roots which kill the plant. Sea otters eat sea urchin, allowing enough kelp forests to remain as a habitat for a variety of species.

Hummingbirds - Considered a *mutualist keystone species* because they influence the procreation of several plant species through pollination.

Build a Beaver Dam

Construct your own beaver dam out of edible materials to learn how and why beavers build dams

Warning - this can get messy!

Earn 5 points by completing activities and sending them in to the kids club!

Materials

- cardboard square (to support the ecosystem)
- peanut butter or chocolate frosting (mud)
- blue icing (water)
- pretzel sticks (logs and sticks)
- Cocoa Pebbles (rocks)
- Swedish Fish (for the beaver pond)

Steps

1. Look at the illustration of the beaver dam on the left page. How do the beavers use logs, sticks, rocks and mud to build their dams?
2. Use the cardboard square as a base for the dam.
3. Spread some "mud" on the base.
4. Then alternative between "logs", "rocks" and mud, to build the dam.
5. Use blue icing to outline the "water" behind the dam.
6. Add fish to the pond behind the dam.
7. Take a photo of your dam and email it to SpokaneEnvirokids@gmail.com.

Bird Feeder

Make a bird feeder out of a clean, empty milk carton!



1. Cut openings on opposite sides of a clean carton and coat with nontoxic paint.
2. Glue Popsicle stick shingles onto the roof.
3. For a perch, poke holes below the openings and slip a dowel through the holes.
4. Fill the bottom of the feeder with birdseed mix. (You can make your own mix by combining a variety of nuts and seeds, such as sunflower seeds, millet, thistle seeds and yellow corn.)
5. Hang the feeder with wire in a spot that's easy to view but far enough away from fences or posts to thwart predators.
6. Take a photo and email it to SpokaneEnvirokids@gmail.com.

Activity and photo courtesy of Disney Family Fun.

Ecology Word Search

Find the 12 vocabulary words from the front page. Hint, they are the words in bold italics.

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

Nature Journal

Spring has sprung in the Inland Northwest. Plants are growing, flowers blooming, and birds are singing their happy songs. Take time this spring to observe nature in your neighborhood. Create a nature journal - stack a few pieces of paper together and then fold in the center to make a book. Write down your observations. Draw pictures of what you see.

Need help getting started? Look around your neighborhood:

1. What plants are growing? How fast or slow do they grow?
2. What is the weather like?
3. What animals do you see? What are they doing? Where do they live? What do they eat?



EnviroKids' Club

EnviroKids' Club
c/o National Weather Service
2601 N. Rambo Rd.
Spokane, WA 99224

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Soil Texture in a Jar!

Members can earn 5 points by completing the soil texture activity in the January newsletter and sending in a photo. Due to the cold winter and spring weather, the ground was frozen longer than expected and members were unable to dig in the soil deep enough to complete the activity. Check out the website for the activity.

EnviroKids'... caring for the Earth

EnviroKids' Club provides its 300+ members with information and activities to explore aspects of the environment: air, water, weather, garbage and recycling, plants and animals. The Club is open to all Spokane County residents who are in grades K-6.

Club members receive a newsletter in the mail four times a year. The newsletter contains activities to complete and ideas for activities at home or in the community. Members who are interested can complete activities and/or participate in some of the events to earn points. Earned points can then be used to trade-in for prizes. **Members need to participate in at least one activity per year to receive newsletters.** For more information, visit www.spokaneenvirokidsclub.org.

To earn points, mail the completed activities

page and this page by June 30, 2012 to: EnviroKids' Club c/o National Weather Service
2601 N. Rambo Rd. Spokane, WA 99224

Complete the activities in the newsletter, fill in this form and send it back to us to earn your points! Do you have a friend or sibling who would like to join Envirokids' Club? Copy this page for them to send in and be added to our mailing list.

Name: _____ Age: _____ Grade: _____ School: _____

Home Mailing Address: _____ City: _____ Zip Code: _____

E-mail Address: _____ Phone: _____

My child has permission to participate in EnviroKids' Club activities that I accompany him/her to and permission is granted to use his/her photo that may be taken at such event, for promoting the Club (newsletter, flyers, ads, website, etc.)

Parent Signature. Please print name, then sign and date

EnviroKids' Club Partners: National Weather Service, Spokane County Water Resources, Spokane Regional Clean Air Agency, Spokane Regional Solid Waste System, WA State Department of Ecology and West Valley Outdoor Learning Center.

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