Lesson 2: *Food Webs within a Riparian Zone*

Lesson Summary

Students will be introduced to the food webs within the riparian zone. They will act out and draw food webs, and begin to build their riparian zone models.

Materials

-Ball of yarn -Plastic containers -Pictures of organisms
- Shoebox (1 per team)
-Paper (plain and construction)
-Pencils -Glue -Tape -Scissors
-Clay or Playdoh
-Soil/dirt -Rocks, twigs, and leaves
-Misc. items: toothpicks, paper cups, foil, sticks, etc.
-Cornell Lab of Ornithology Afterschool Investigators Nature Detective Kit: Food Web Tangle Poster, Food Web Nametags

Key Vocabulary

-Habitat
-Environment
-Producers
- Consumers
-Decomposers
-Decomposition
-Fungus -Bacteria
- Invertebrate
-Organism

Next Generation Science Standards:

Performance Expectations: 5-LS2-1 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	**Disciplinary Core Ideas:** 5-LS2.A: Interdependent Relationships in Ecosystems LS2.B: Cycles of Matter and Energy Transfer in Ecosystems
Performance Expectations: Developing and Using Models Modeling in 3–5 builds on K–2 models and progresses to building and revising simple models and using models to represent events and design solutions. • Develop a model to describe phenomena.	**Cross Cutting Concepts:** Systems and System Models • A system can be described in terms of its components and their interactions.

Instructors Notes:

-Students will begin their riparian zone model in this lesson. Ask students to bring and rinse out recycling materials from home to use in the construction of their models such as plastic bottles, lids, containers etc.
-For ideas on creating models with your students please see:
http://www.TeachEngineering.org or http://www.wikihow.com/Make-a-Dioramahttp:///h
-Activity #3 and the materials provided in the Cornell Lab of Ornithology Afterschool Investigators Nature Detective kit will be included in this activity.

Introduction:

Explain to students that you are now going to learn even more about the riparian zone as a habitat, including food webs.

Procedure:

1. Ask students, what do we need to survive? (food, water, air, cover/shelter, space to work, play, and reproduce). Where do we get these things in our environment (a space with a broad range of living and nonliving things in a certain area on earth), or our habitat (a specific place within the environment where we live that provides our necessities for survival)?
2. Discuss how the habitat that we live in is similar and different to that of a frog, newt, bird, deer, or other riparian animals such as macroinvertebrates.
3. Ask: Why do we eat breakfast, lunch, and dinner?

Explain: To provide ourselves with the nutrients that help us move, grow, and stay healthy. A food chain is a series of nutrients and energy moving through a chain of organisms.

4. Ask for a volunteer to trace the food chain of their vegetables, fruit, cheese, eggs, meat etc. that they had for breakfast or may have for dinner.

Where do all these food chains start? The sun, which provides energy for **producers** (organisms capable of making their own food) such as plants, that use photosynthesis to grow and become food for **consumers** (organisms that eat producers or other consumer organisms) like us. Finally, **decomposers** (organisms that eat and break down dead or decaying organisms) such as mushrooms, bacteria, fungus, and invertebrates return the nutrients and energy to the food chain via the soil and atmosphere to be reused in the system.

5. Draw example food chains as a class on the board.
6. Act out food chains. In the Cornell Lab of Ornithology's Afterschool Investigators Nature Detective kit use Activity 3, #1: Build a Food Web.
7. Optional: Activity 3, #3: A Food Chain in Action-play Hawks and Rabbits.
8. Have students act out and/or draw food webs specific to a riparian zone.
9. Have teams begin to plan and sketch out their models. What will they include in their model? Where? How will they build it? Or what will they use to represent certain aspects such as: the river, trees and plants, soil, sun, etc.
10. Have students begin their riparian zone models using a shoebox or cardboard, and a variety of materials listed above. Be sure to include sun, trees, plants, water, soil, animals, birds, fish, etc.
11. As a group, reflect on their models. How did it go? What did they place in their models? Why? Is anything missing? Do they need other materials?

Resources:

American Forest Foundation. Project Learning Tree: PreK-8 Environmental Education Activity Guide.
Cornell Lab of Ornithology's Afterschool Investigators Bird Sleuth: Nature Detective Kit.
University of Colorado Boulder, Integrated Teaching and Learning Program, College of Engineering: www.TeachEngineering.org.