Activity 2: Rainforest food web

Purpose: To understand how all life is interconnected and the sun, trees, and plants are major components in a food web.

Key concepts:

- **Producers**: plants and trees (fruits and nuts)
- **Consumers**: herbivores (eat plants), insectivores (eat insects), carnivores (eat other animals), and omnivores (eat plants/animals)
- **Decomposers**: bacteria, fungi (mushrooms), and molds
- Interconnected, interdependent

Materials: **The Great Kapok Tree**, by Lynne Cherry, access to the Internet, recycled paper, pencil, crayons, markers, and a ball of yarn

Common Core Standards:

English Language Arts Standards:

Reading: Informational Text:

Craft and Structure:
CCSS.ELA-Literacy.RI.3.4 (third), 4.4 (fourth), and 5.4 (fifth) Determine the meaning of general academic and domain-specific words and phrases in a text to a grade 3-5 topic or subject area.

Speaking & Listening:

Comprehension and Collaboration:
CSS.ELA-Literacy.SL.3.1 (third), 4.1 (fourth), and 5.1 (fifth) Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3-5 topics and texts, building on others' ideas and expressing their own clearly.
CCSS.ELA-Literacy.SL.3.2 (third) Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

Presentation of Knowledge and Ideas:
CCSS.ELA-Literacy.SL.3.4 (third) Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
CCSS.ELA-Literacy.SL.4.4 (fourth) Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
CCSS.ELA-Literacy.SL.5.4 (fifth) Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details

to support main ideas or themes; speak clearly at an understandable pace.

Language:

Vocabulary Acquisition and Use:
CCSS.ELA-Literacy.3.4c (third) Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., company, companion).
CCSS.ELA-Literacy.L4.4b (fourth) Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., telegraph, photograph, autograph).

Next Generation Science Standards (NGSS):

Disciplinary Core Idea Progression:

Life Science Progression (LS2.A): The food of almost any animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants, while decomposers restore some materials back to the soil.

Life Science Progression (LS2.B): Matter cycles between the air and soil and among organisms as they live and die.

NGSS Crosscutting Concepts:

Systems and System Models- A system is an organized group of related objects or components; models can be used for understanding and predicting behavior of systems. A system is a group of related parts that make up a whole and can carry out functions its individual parts cannot. A system can be described in terms of its components and their interactions.

Understandings about the Nature of Science:

Scientific knowledge assumes an order and consistency in natural systems: Science assumes consistent patterns in natural systems; Basic laws of nature are the same everywhere in the universe.

Procedure: (Discuss a food chain → then progress to a food web)

- The sun provides sunlight for plants to photosynthesize, or produce sugar (their source of food). Plants use some of the energy and store the rest.
- Consumers are animals that eat plants (herbivores), insects (insectivores), other animals (carnivores), and plants and animals (omnivores).
- An example of a food chain in a rainforest is as follows: The ***sun*** provides energy (sunlight) to ***trees/plants*** which undergo photosynthesis, thus producing sugar (food). This is why trees and plants are called producers. An herbivore, such as a ***sloth*** eats leaves and flowers from a tree. A carnivore, such as a ***harpy eagle***, eats the sloth.
- Note: This is just one of a billion food chains which exist in rainforests. You can use your own to illustrate the point.
- Food web: Discuss the wonderful messages in the book: **The Great Kapok Tree** and also the reality of what is happening to big trees currently: http://news.mongabay.com/2012/0126-big_trees.html
- After reading, "**The Great Kapok Tree**," by Lynne Cherry ask students to choose an animal of interest to them.
- Allow students time to create their own 8 ½ by 11 animal cards (use card stock) (see pdf) by researching what their animal eats and who eats them (predator).
- Note: Have students write this information on the back of their cards and either draw or print (paste) an image of their animal from www.mongabay on the front cover of their cards.
- Punch a hole at the top of the card and thread a piece of string.
- Students will 'wear' their cards for the following activity (picture facing forward so everyone can see).

Activity: (Have fun!)

- Ask three students or parents to volunteer to represent the sun, the Great Kapok tree, and a decomposer (mushroom)
- Give the sun a ball of yarn and have them say, "*Who depends on me*?" Everyone should say, "*I do!*" Specifically, the Great Kapok tree is the producer in this activity, so the yarn should thread from the sun to the tree (showing a connection between the two).
- The tree asks, "*Who depends on me*?" and again, everyone should say, "*I do*," since all life depends on trees and the oxygen they provide. Specifically, the yarn should continue threading from the the sun, to the tree, and then to all of the herbivores and omnivores (plant eating animals). This threading from one student to the next is what will create a web.
- Then, all of the plant eating animals say, "*Who depends on us*?" The insectivores and carnivores should answer, "*We do!*" with every

insectivore and carnivore receiving the yarn.

- Finally, an animal has died and says, "*Who depends on me*?" The decomposer receives the yarn and says, "*I do!*"
- Take the opportunity to discuss interconnected and interdependent; inter is a Latin root which means between or among. Thus, a food web demonstrates interconnection and interdependency between and among the sun, trees, plants, animals, and decomposers.
- Discuss what would happen if the Great Kapok tree were cut down: ties to article: http://news.mongabay.com/2012/0126-big_trees.html
- Discuss how *all* life is interconnected and interdependent.
- Finally, students can take their cards off and draw the food web they just experienced as a class on the backside of their cards. Students can use arrows to demonstrate the movement of energy from one source to another. For example, from the sun to the tree, the arrow points toward the tree. From the plants to the herbivores, the arrow points toward the herbivores, etc. You may want to demonstrate this on the board with them.

References:

www.mongabay.com (for pictures)
http://news.mongabay.com/2012/0126-big_trees.html
The Great Kapok Tree: A Tale of The Amazon Rainforest by Lynne Cherry copyright 1990

Food web

My animal eats _____

_____

The predators of my animal are _____

_____

Rating Activity 2

Teachers:
Teachers rating Activity 2 for effectiveness in helping students learn ____

1 not helpful! 2 a little bit helpful 3 helpful 4 very helpful 5 Wow!

Teachers rating Activity 2 for level of enjoyment _____

1 not fun! 2 a little bit fun 3 fun 4 very fun 5 Wow!

Students:
Students rating Activity 2 for helping you learn _____

1 not helpful! 2 a little bit helpful 3 helpful 4 very helpful 5 Wow!

Students rating Activity 2 for level of enjoyment _____

1 not fun! 2 a little bit fun 3 fun 4 very fun 5 Wow!