4th - 8th Grade

4-H PROJECT LESSON PLANS:

4-H Helps YOUth Leap into the 21st Century

Series 1

"Web of Life"

LSU AgCenter
Research & Extension

Dear Project Helper,

This lesson is part of an effort by the 4-H Youth Development Division of the LSU AgCenter to provide teaching activities that are fun as well as educational. We are pleased you have agreed to work with youth as they learn and grow. You will help them learn scientific concepts they will use for many years.

These lessons address Louisiana Content Standards science benchmarks; therefore, what you do with this activity should help strengthen students for LEAP testing. We appreciate your being part of this effort.

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Series 1

Learning Activity:
"Web of Life"

Key Concepts:

1. An ecosystem exists when all the plants, animals and bacteria that make up a particular community live together in that environment.
2. Every part of an ecosystem is interrelated.

How can members apply this information?

1. Apply team-building skills.
2. Make well-informed decisions about the environment.
3. Teach others what they learn.

Getting Ready:

1. Gather all supplies needed.
2. Read lesson and be thoroughly prepared.
3. Prepare Posters #1-5 found in "What You Need for the Lesson" on this page.

What You Need for the Lesson:

1. Four lengths of yarn, each about 5 feet long; ONE SET FOR EACH STUDENT: one blue (WATER), one green (FOOD), one white or yellow (AIR) and one brown (SHELTER).
2. One name tag with a role from the community for each student; each community includes 10 participants. There may be more than one group for each of the two communities, depending on the number of participants.

Community 1: girl, stream, topsoil, oak tree, owl, trout, cow, cattail, worm, corn

Community 2: corn, boy, pine tree, squirrel, frog, river, pig, fly, grass, topsoil

3. Posters: #1 Title "The Web of Life"

#2 Quote for introduction: "When one tugs at a single thing in nature, he finds it attached to the rest of the world." John Muir, American naturalist, explorer and conservationist.

#3 Picture of meal, like breakfast plate (Draw or cut out and paste this or a similar picture.)

#4 Picture of pig on farm near a cornfield (Draw or cut out and paste this or a similar picture.)

#5 Terms & Definitions (See Step 6, "What You Say," in this lesson plan.)

Track:
Ecology

Life Skill:
Communication, Cooperating and Teamwork

NNST Science:
Structuring, Focusing and Communication

SCANS:
Understands complex interrelationships

Search Institute Internal Assets Model:
Positive identity

Character Focus:
Respect, Responsibility

Project Skill:
Realizing that our environment is an "ecosystem" and that all parts of life in that system are related

Louisiana Content Standards Benchmarks:
SI-M-A7, SI-M-B5, LS-M-C2, LS-M-C4, SE-M-A1, SE-M-A1, SE-M-A9.

Delivery Mode:
4-H Club Meetings, Science Class and School Enrichment

Time Allotted:
20-30 minutes

Number of Participants:
10-30

4th-8th Grade "Web of Life"

What You Say:	What You Show or Do:	What Participants Do:
How would you define the word *ecosystem*? Where have you heard the word ecosystem used? Today's program is "The Web of Life." You will become aware of the term ecosystem and learn all living things in a community are interrelated in one way or another.	Ask questions. Allow students to discuss and respond. Show Poster #1	Discuss and respond.
"When one tugs at a single thing in nature, he finds it attached to the rest of the world," said John Muir, American naturalist, explorer and conservationist. Will someone explain what this quote means?	Allow time for discussion and responses. Show Poster #2. Allow for discussion and response.	Listen to quote. Discuss and respond.
Can anyone tell me where this food comes from?	Display Poster #3 of a meal, like a picture of a breakfast plate of eggs, bacon or ham, toast, milk, juice. Allow for discussion and response.	Respond by listing livestock or crops that items in the meal represent. (Possible answers: eggs = poultry/chickens; bacon/ham = pigs; toast = grain crop such as wheat; milk = dairy cows; juice = fruit. Answers depend on picture of food products you display.)
Is there a connection between corn and meat? (Possible answer: Livestock eat feed made of corn and convert it to meat.)	Show Poster #4 of a pig or cow on a farm near a field of corn. Allow time for discussion and responses.	Discuss and respond.
We know there is a connection between corn and meat. Is there a connection between soil and corn? If so, explain the connection. (Possible answer: The decay of organic matter such as plants and animals creates food for the corn as it grows in the soil.)	Allow for discussion and responses. You may want to go more in depth and ask where the soil gets its nutrients.	Discuss and respond.

4th-8th Grade "Web of Life"

What You Say:	What You Show or Do:	What Participants Do:
Now that you made the connection from soil to corn, from corn to meat, and from meat to humans, you now can understand how every component in a community is related. An *ecosystem* is a group of organisms and their physical environment, all of which interact through a flow of energy and a cycling of materials. The word "eco" comes from the Greek word "oikos," which means home. A system is a combination of interrelated elements designed to work as a whole.	Show Poster #5 of terms/ definitions.	Listen and follow along with poster.
We will play a game to learn how an ecosystem works. Number yourselves from 1 to 8 and form groups of eight to learn how an ecosystem works. Each member will be given four lengths of yarn. The blue one will represent water, the green one food, the white or yellow one air and the brown one will represent shelter.	Divide the class/club into groups of eight to 10 students. Each group should sit in a circle. Give each student four lengths of yarn, each about 5 feet long: one blue (WATER), one green (FOOD), one white or yellow (AIR) and one brown (SHELTER). Pass out nametags labeled with a role in the community for each student. (Depending on class size, there may be more than one of each of the two communities listed in item #2, "What You Need for the Lesson.")	Move into groups and prepare for activity.
(Experience) Each group represents an ecological community. Within each group, one by one, each student/role needs to identify another student/role to which he/she is related. The relationship may be providing a basic need such as air, water, food and shelter. Once you identify a student/role that you rely on for a basic need, give one end of the length of yarn to the other student /role to hold, thus connecting them to you.	Monitor to be sure they understand the directions correctly.	Students make connections with yarn.

4th-8th Grade "Web of Life"

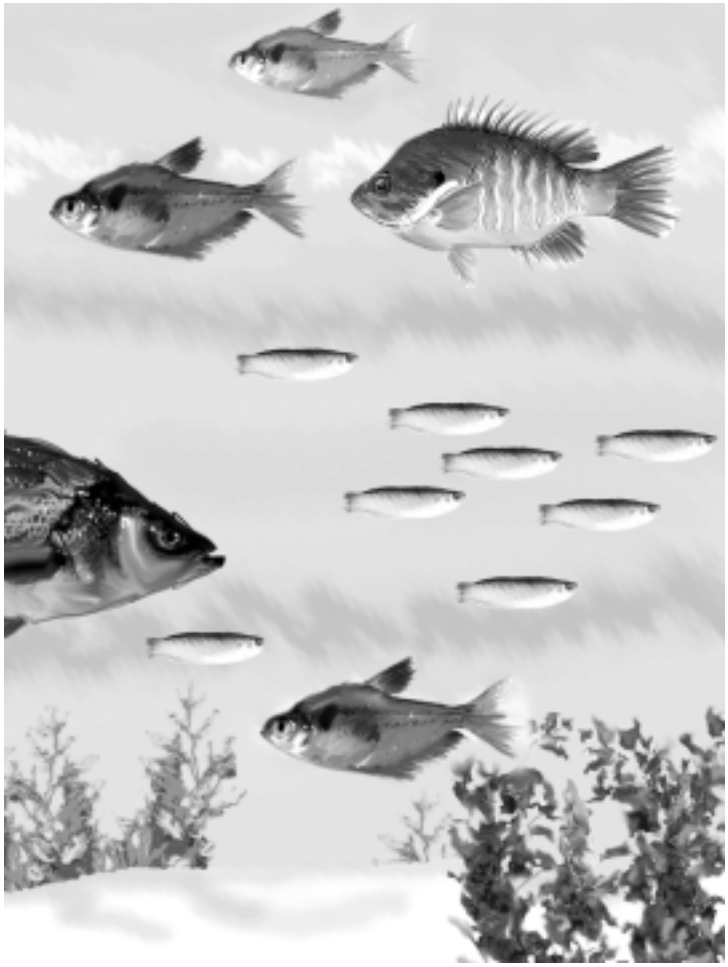
What You Say:	What You Show or Do:	What Participants Do:
What connections have you found?	Allow for discussion and response.	Participants discuss. (Possible responses: The topsoil provides food for the corn and trees and shelter for the worms. The corn and trees provide oxygen (air) through photosynthesis and provide plant residue that serves as nourishment in the soil. Trees and grass shelter the topsoil. Trees are also shelters for wildlife and animals, and they provide wood for shelter for the people. Windbreaks made from trees can protect cornfields from storms. Humans can build shelters for the animals and also protect the soil.)
(Share) What did you do in this activity? How did you feel when pieces of yarn were given to you? (Possible answers: Share what they did. Describe how they discovered connections they had not thought of before; felt connected to the group.)	Allow for discussion and responses.	Participants discuss and respond.
Gently tug on your strings of yarn to demonstrate what was expressed in this quote, "When one tugs at a single thing in nature, he finds it attached to the rest of the world," by John Muir.	Display again poster #2 with quote.	Tug on yarn. Respond.
(Process) Why is it important to understand how an ecosystem works? What was easy (or difficult) about working in a group to complete this activity?	Allow for discussion.	Participants discuss and respond.
(Generalize) What similar experiences have you had participating as an active member of a group or community? (Possible answers:	Allow for discussion.	Discuss and respond.

4th-8th Grade "Web of Life"

What You Say:	What You Show or Do:	What Participants Do:
When working on a school project, we all depended on one another to contribute a part to complete and combine the pieces of that project, etc.)		
(Apply) How did this activity change your thinking about your surroundings and how your environment supplies your basic needs? What will you do tomorrow/next week/next month to use what you have learned in this activity?	Allow for discussion and responses.	Discuss and respond.
You now understand that each role in an ecosystem is important. Each component of an ecosystem depends on other parts.You must do your part to be a **responsible** citizen in your community just as every component in an ecosystem must do its part so the community functions as a whole. I hope you now have a new **respect** for every member of your community and the part each plays in making your community a good and safe place to live and grow.		

Ways to Help Members Learn More

Conduct activities found on the National Corn Growers Association Web site: www.ncga.com



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Author:
Angie Arnould, Assistant County Agent, Iberville Parish
Coordinators:
Terril Faul, State 4-H Division Leader and Sarah Williams, Extension Associate 4-H Youth Development

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