



4th - 8th Grade

**4-H PROJECT**

**LESSON**

**PLANS:**

4-H Helps

YOUTH

into the

**21<sup>st</sup>** Century

Series **1**

"Dead or Alive"

**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 that 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.

Welcome  
to the  
wonderful  
world of  
4-H Youth  
Development!



# Learning Activity: “Dead or Alive,”

The Living and Non-living of an Aquatic/Marine Ecosystem

## Key Concepts:

1. Definition of ecosystems
2. Types of ecosystems in Louisiana
3. Abiotic and biotic components of an ecosystem

## How Can Members Apply this Information?

1. Describe how abiotic components influence biotic components of an ecosystem.
2. Identify the characteristics and life cycles of organisms in an ecosystem.
3. Explain the relationship of organisms to each other and their environments.

## Getting Ready:

1. Contact the Chamber or Commerce or Tourist Commission for a Louisiana map or map of your local area for students to use in identifying ecosystems in your area.
2. Prepare ecosystem posters (Resource Sheets A-1, A-2 and A-3) on foam or poster board.
3. Prepare ecosystem role-playing cards (Resource Sheets B-1 to B-14) on card stock or construction paper. Use different colors.
4. Prepare ecosystem influence/change cards (Resource Sheets C-1 to C-5) on card stock or construction paper. Use different colors.

## What You Need for the Lesson:

1. Louisiana or local map
2. Posters
3. Role-playing cards
4. Influence/change cards
5. Lesson script

Track:  
 Environment/Science  
 Life Skill:  
 Problem Solving, Acquiring  
 and Analyzing Information  
 Character Focus:  
 Citizenship  
 Project Skill:  
 Identifying abiotic and biotic  
 components of an ecosystem  
 Louisiana Content  
 Standards  
 Benchmarks:  
 LS-E-A1, LS-E-A2,  
 LS-E-A3, SE-E-A2, SE-E-A5,  
 SE-M-A1, SE-M-A4

## *Delivery Mode:*

*4-H Club Meeting, Science Class,  
 School Enrichment*

## *Time Allotted:*

*30-45 minutes*

## *Number of Participants:*

*1-30 (fewer than 10, use role-  
 playing cards on flannel board or  
 other board to create ecosystem.)*

## 4th-8th Grade “Dead or Alive”

What You Say:	What You Show or Do:	What Participants Do:
<p>Today we will talk about ecosystems. What is an ecosystem? (Accept all reasonable answers.)</p>	<p>Show title poster “Aquatic/ Marine Ecosystems” or show a picture of any of the following: swamp, marsh, lake, river, pond, beach or estuary. (Contact your Chamber of Commerce or tourist information center for a poster/ visual related to your area.)</p>	<p>Define ecosystem.</p>
<p>An ecosystem is a group of plants and animals and the environment they live in. The plants and animals function together as a system in nature. An ecosystem consists of both living and nonliving things.</p>		
<p>Many of these types of ecosystems exist in Louisiana. They are located in areas that are always under water or are covered with water only certain times of the year. Can anyone give me an example of an aquatic or marine ecosystem or locate an ecosystem on this Louisiana map?</p>	<p>Show a Louisiana map. Solicit responses from participants. Hold up ecosystem posters “Aquatic / Marine Ecosystems” resource sheet A-1, page 5.</p>	<p>Discuss and respond.</p>
<p>In Louisiana, we have wetland ecosystems, freshwater ecosystems, coastal ecosystems and saltwater ecosystems. As I identify one, please volunteer to come up and locate it on our map of Louisiana.</p>	<p>Describe wetland ecosystems in Louisiana; ask for a volunteer and help the volunteer locate it on the map.</p>	<p>Volunteer and locate wetland ecosystems on Louisiana maps.</p>
<p>An ecosystem has two basic components. The <i>biotic</i> component is the living part of the ecosystem. These are the plants and animals.</p>	<p>Show poster: Biotic = Living, p. 13 (Optional – Clip Art on poster representing birds, fish, animals, reptiles, insects, plants and trees)</p>	
<p>Another part of the ecosystem is also very important. The nonliving part of the ecosystem is called the <i>abiotic</i> component.</p>	<p>Show poster: Abiotic = Nonliving, p.14. (Optional – Clip Art on poster representing water, sun, soil, wind, waves, temperature)</p>	

## 4th-8th Grade "Dead or Alive"

What You Say:	What You Show or Do:	What Participants Do:
<p>Can you list some nonliving parts of an ecosystem? (Possible answers: water, sun, soil, wind, waves, temperature)</p>	<p>Allow time for discussion and response.</p>	<p>Identify the nonliving parts of an ecosystem.</p>
<p>The nonliving parts or abiotic parts of an ecosystem are components such as temperature, sunlight, soil and water, including how deep the water is and if it is salt water or fresh water, the wave action of the water, and wind conditions.</p>	<p>Show clip art on posters (if you have included it).</p>	
<p>(Experience) Today we will create our own ecosystem. Remember there are biotic (living) and abiotic (nonliving) components in an ecosystem. We will discuss how abiotic (nonliving) components affect the biotic (living) components of an ecosystem. I will need some volunteers to represent the parts of our wetland ecosystem.</p>	<p>Get volunteers to represent the parts in a wetland ecosystem. Give each volunteer a role-playing card representing the different parts of the ecosystem. (Resource Cards B-1 to B-14) Have participants, sit, kneel or stand, depending on the part they represent. Example: "Water" can sit on the floor, while "sunlight" stands high.</p>	<p>Volunteers display the cards identifying parts of the ecosystem they represent. The role-playing cards can be held by hand or hung with yarn, ribbon or string around the neck of the volunteers. The remainder of the audience should be able to see the role-playing cards clearly.</p>
<p>(Share) What are some of the abiotic components that affect the plants in our ecosystem? (Possible answers: Temperature, water, sunlight, wind and soil.)</p>	<p>Allow time for discussion and responses.</p>	<p>Identify abiotic components. Ecosystem volunteers hold up cards as abiotic components are identified. Discuss and respond.</p>
<p>(Process) Will these abiotic components change over time? (Answer: Yes.) How will they change? (Temperature will change - hot, cold, warm, cool) (Sunlight - bright sunshine, some sunshine, cloudy) (Wind - no wind to severe windy conditions) (Water - fresh water, salt water, low water level, high water level, no water, polluted water) (Soil - rich soil, right amount of soil, erosion, pollution)</p>	<p>Allow time for discussion and response.</p>	<p>Discuss and respond.</p>

## 4th-8th Grade "Dead or Alive"

What You Say:	What You Show or Do:	What Participants Do:
<p>(Generalize)            What things in the ecosystem do plants need to live?            (Possible answers: Sunlight, air, water, chlorophyll, soil that contains nutrients and soil in the right amounts)</p>	<p>Solicit response from audience.            Discuss what plants need to survive.</p>	<p>Discuss and respond.</p>
<p>How are the animals in our ecosystem affected by abiotic factors? (Possible answers: The animals need water to drink. Some of the animals depend on plants and other animals to survive. Even these plants and animals need abiotic factors to survive. For example, the alligator could not survive without water, but also could not survive without the fish they eat for food.)</p>	<p>Solicit response from audience.            Discuss how animals need abiotic components.</p>	<p>Discuss and respond.</p>
<p>What would happen if the temperature remains extremely hot or cold for a long time? (Possible answer: Some plants or animals may not be able to survive.)</p>	<p>Give temperature role player a high temperature or low temperature card (Resource Cards C-1 to C-5, influence/change cards) and ask person to display so audience can see it. Solicit response from audience. Discuss responses to questions.</p>	<p>Plant and some animal role players leave the ecosystem or pretend to die.            Discuss and respond.</p>
<p>What would happen if salt water intruded our freshwater ecosystem and remained there? (Possible answers: Animals may not survive because of lack of fresh water. Some freshwater fish species may die or move to other freshwater areas. The salt water may kill plants and grasses that may not adapt to salt water.)</p>	<p>Give water role player a saltwater intrusion card (Resource Cards C-1 to C-5, influence/change cards) and ask person to display so audience can see it. Animal, fish and plant role players leave the ecosystem after question has been asked and answered.</p>	<p>Discuss and respond.</p>
<p>What would happen if the soil became polluted or eroded away? (Possible answer: The living things in the ecosystem may not be able to survive in the new environment.)</p>	<p>Give soil role player an erosion or pollution card (influence/change cards); ask person to display so audience can see it.</p>	<p>Plants and grass role players may pretend to die.            Some animal role players leave to go to another environment.</p>

## 4th-8th Grade "Dead or Alive"

What You Say:	What You Show or Do:	What Participants Do:
<p>(Apply) Do human beings do anything to hurt or harm our ecosystems? Can you name some things human beings do to harm ecosystems? (Polluting water, clearing trees to build, filling in wetlands.)</p>	<p>Allow time for discussion and responses.</p>	<p>Discuss and respond.</p>
<p>What happens to the animals and plants when humans harm the ecosystem? (Possible answer: Often they do not adapt, so they move on to another ecosystem or become extinct and die.) We can observe plants and animals in many different types of ecosystems. Think of your own backyard, the school grounds or any other area where plants and animals live. We can observe plants and animals in many different types of ecosystems. Are there abiotic components that affect the plants and animals that live there? Do they change over time? (Possible answers: Yes, sunlight, temperature, water, wind, soil)</p>	<p>Allow time for discussion and responses.</p>	<p>Discuss and respond.</p>
<p>We hope this exercise will help you understand how biotic components (living things) are influenced by abiotic components (nonliving things) and how they work together to make up an ecosystem and our environment. Let's thank our ecosystem volunteers for their help today.</p>	<p>Collect role-play cards from volunteers. Thank and recognize volunteers.</p>	

## 4th-8th Grade "Dead or Alive"

What You Say:	What You Show or Do:	What Participants Do:
<p>Responsible <b>citizenship</b> is vital to the life of our ecosystems. As we practice <b>citizenship</b> in our communities, we must be aware of what is needed to keep those systems strong and working as they should. We also must teach others what we have learned about caring for our environment. Are you willing to be a good citizen and share with family, friends and neighbors in your community what you have learned about protecting our environment?</p>		



# Ways to Help Members Learn More:

1. Get permission from school leaders to allow members to teach younger students what they have learned in this lesson.
2. Assist students as they prepare posters about the importance of protecting our ecosystems. Help them contact business owners to get permission to display their posters in prominent places.



## Resources:

1. You and the Environment, 4-H Project Book, LSU AgCenter, LCES, 1994.
2. Aquatic/Marine Ecosystems, Leader's Activity Guide, A 4-H Activity Guide for 9-14 year olds. University of Florida, Institute of Food and Agricultural Sciences, Cooperative Extension Service.
3. Evaluating 4-H Curriculum through the Design Process: Pilot Testing and Collecting Data for the 4-H National Jury Review Process©1999, Purdue University The Ohio State University.

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*Louisiana Content Standards*, published by Louisiana State Department of Education.

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A-1

# Aquatic / Marine Ecosystems

A-2

**Biotic = Living**

A-3

**Abiotic =  
Nonliving**

C-1

**High  
Temperatures**

C-2

# Low Temperatures

C-3

# Saltwater Intrusion

C-4

# Erosion

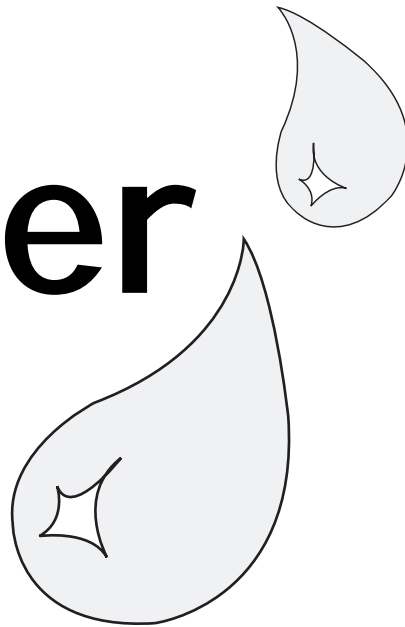
C-5

# Pollution

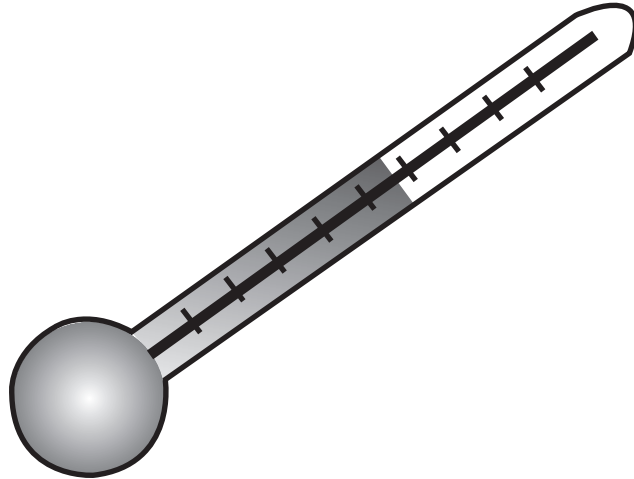
# Ecosystem Role-playing Cards

B-1

# Water

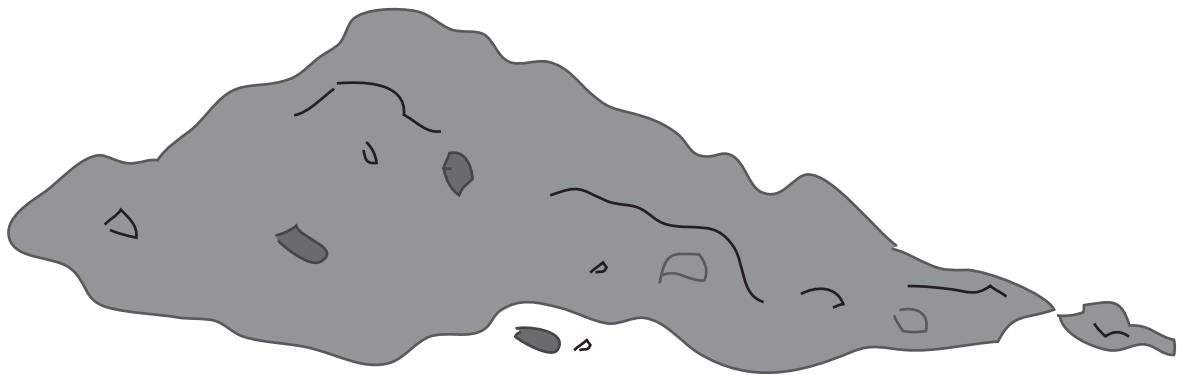


B-2



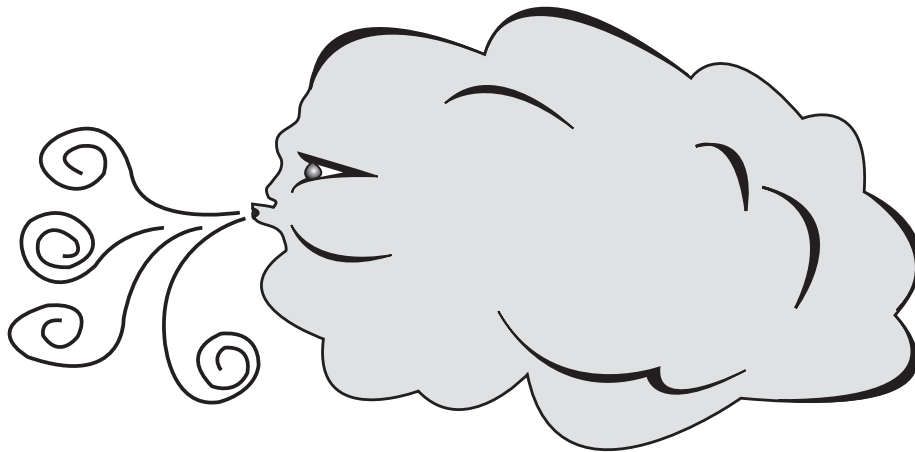
# Temperature

B-3



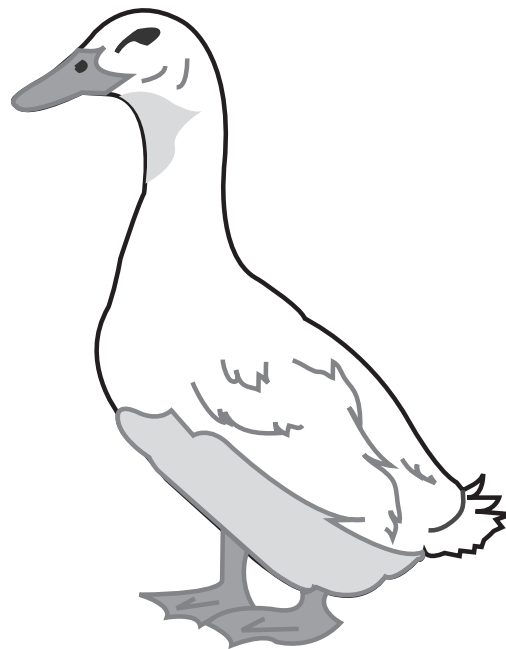
# Soil

B-4



**Wind**

B-5



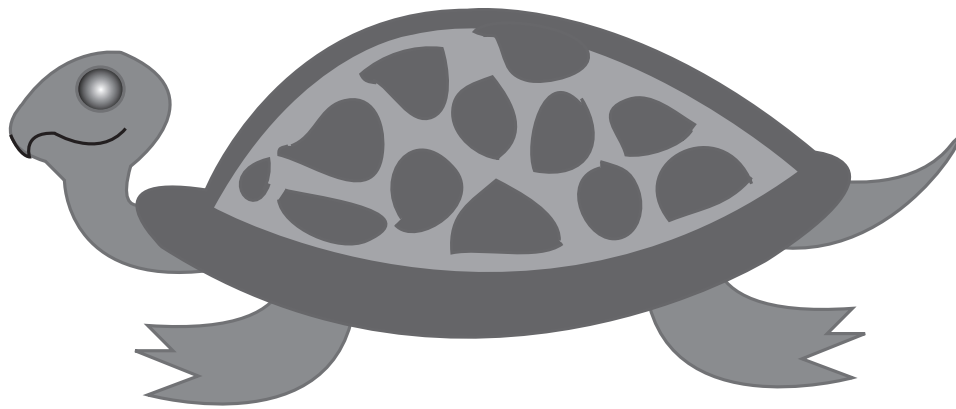
**Duck**

B-6



**Heron**

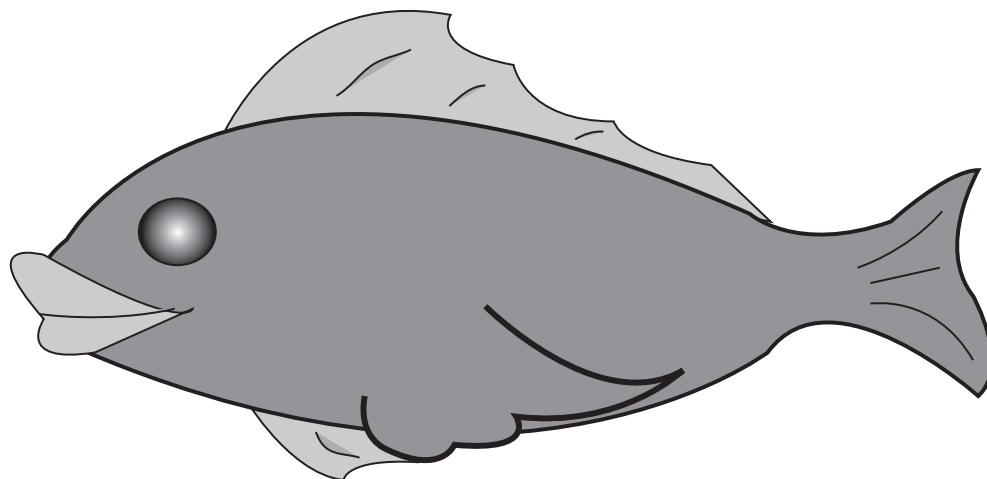
B-7



**Turtle**

B-8

# Fish



B-9

# Grass



**B-10**



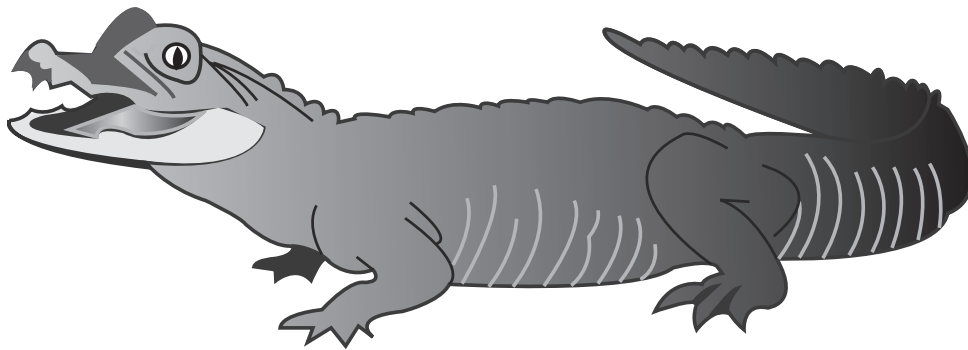
**Tree**

**B-11**



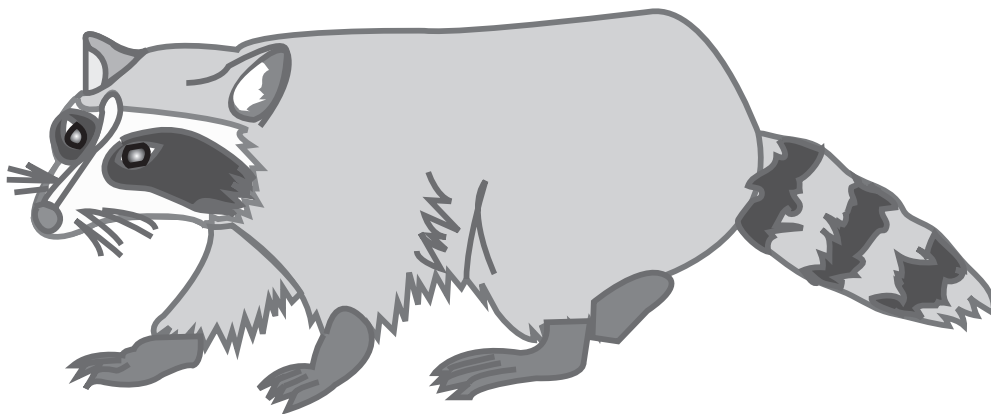
**Shrub**

B-12



**Alligator**

B-13



**Raccoon**

B-14



**Insect**

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