The following instructional plan is part of a GaDOE collection of Unit Frameworks, Performance Tasks, examples of Student Work, and Teacher Commentary. Many more GaDOE approved instructional plans are available by using the Search Standards feature located on GeorgiaStandards.Org.

Georgia Performance Standards Framework for Life Science- 7th Grade

Unit: Energy Flow and Nutrient Cycling

General Task
Modeling an Ecosystem

Subject Area: Life Science
Grade: 7

Standards (Content and Characteristics):

S7L4. Students will examine the dependence of organisms on one another and their environments
   c. Recognize that changes in environmental conditions can affect the survival of both individuals and entire species.
   d. Categorize relationships between organisms that are competitive or mutually beneficial.

S7CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.
   a. Observe and explain how parts can be related to other parts in a system such as predator/prey relationships in a community/ecosystem.

Enduring Understanding: Organisms depend on one another as well as their environment for survival.

Essential Questions: What would happen if an organism in the food web was destroyed?

ADMINISTRATION PROCEDURES

Pre-Assessment: Thumbs Up or Thumbs Down

1) All organisms depend on each other for survival.
2) If a population in the ecosystem becomes extinct nothing happens.
3) In a food web there is no energy.
4) Changes in environmental condition do not affect the survival of different populations.

**Georgia Performance Standards Framework for Life Science- 7th Grade**

| Outcome / Performance Expectations: | Students will create a model of an ecosystem and record findings of relationships between organisms in the ecosystem and the impact of removing an organism. |
| General Teacher Instructions: | 1. Teacher will divide the class into two groups.  
Group 1: Students will write each term and definition on separate 3x5 cards for sun, food chain, producer, consumer, and decomposer.  
Group 2: Students will write term, definition, and create 2 organism cards on individual 3x5 cards for herbivore, carnivore, and omnivore, and food web  
Pair & Share. Teacher will pair 1 student from Group 1 and 1 student from Group 2. Students will teach terminology to their partner.  
2. Give each student a picture. Ask him or her to list:  
   - The needs of the organism in order to grow and reproduce.  
   - The function that the organism performs in its ecosystem.  
   - The impact on the ecosystem if that organism became extinct.  
   - Label the organism as herbivore, carnivore, omnivore, etc.  
3. Pair & Share; Have students share information from list with a peer. (Use the same groups from the first activity)  
4. Have students attach the picture to their shirt and form a circle facing each other.  
5. Hand an end of the yarn to a student. The student will identify one organism it will eat or be eaten by. The student will use the yarn to connect with the “identified” student.  
6. Continue until all students are connected with the string creating a “web.” |

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7. Discuss with students the following questions:
   - Is there more than one organism “you” could eat?
   - How many different organisms could eat “you”?

8. Remove one student from the web as he or she is now extinct.

9. Repeat and ask students
   - What is the new competition for food?
   - What organism will be looking for you as a new source for food?

Materials Needed:

- One picture per student of organism in local ecosystem
- String or yarn
- Safety pins or yarn
- Computer Access
- 3x5 cards
- magazines
- markers

Safety Precautions:

- Students will need to be cautious when pinning pictures on their shirts.

Task with Student Directions:

1. Students in Group 1 will write each term, definition on separate 3x5 cards for sun, food chain, producer, consumer, and decomposer.

2. Students in Group 2 will write term, definition, and create 2 organism cards on individual 3x5 cards for herbivore, carnivore, and omnivore, food web

3. When finished, pair with your partner and teach your partner the different terms to participate in a Pair & Share Activity

4. Take the picture you are given by the teacher and write the following information on your picture:
   - The needs of the organism in order to grow and reproduce.
   - The function that the organism performs in its ecosystem.

Georgia Performance Standards Framework for Life Science - 7th Grade

- The impact on the ecosystem if that organism became extinct.
  Label the organism as herbivore, carnivore, omnivore, etc.

5. Share your information with your partner.

6. CAREFULLY pin your picture and information on the front of your shirt.

7. The teacher will start by giving a piece of string to one student. That student will identify one organism it will eat or be eaten by.

8. Pass the yarn to the “organism” you identified.

9. Continue until a web forms.

10. After the class discussion you will create a “Before & After” graphic organizer. To do this you will take a sheet of paper, and foldout in half. You will write Before Extinction on one side and write After Extinction on the other side.
    1) Write or illustrate what the competition is before and after the extinction of an animal.
    2) Write or illustrate what organism is looking for you as a new source for food before and after the extinction of an animal.
    3) Students may use the Internet to do research.

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<thead>
<tr>
<th>Resources:</th>
<th>Textbook, Computer</th>
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<tbody>
<tr>
<td>Homework / Extension:</td>
<td>Students will create another situation where a different animal becomes extinct. They will construct a “Before &amp; After” graphic organizer as they did in class.</td>
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<tr>
<td>Instructional Task Accommodations for ELL Students:</td>
<td>Student will work with an English speaking student to complete graphic organizer. Students will be given illustrated definition cards in lieu of defining words.</td>
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<table>
<thead>
<tr>
<th>Instructional Task</th>
<th>Teacher will prompt student if he/she is unsure who the yarn should be given to.</th>
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<tbody>
<tr>
<td></td>
<td>The visual representing of the food web will aid students in following and grasping the material.</td>
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<td></td>
<td>Teacher will model how to make a “Before &amp; After graphic organizer.</td>
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<td></td>
<td>Pair student with language proficient peer.</td>
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<tr>
<td><strong>Instructional Task Accommodations for Students with Specific Disabilities:</strong></td>
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<tr>
<td><strong>Instructional Task Accommodations for Gifted Students:</strong></td>
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<tr>
<td>Teacher will model how to make a “Before &amp; After” graphic organizer.</td>
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<td>Student will be given a word bank to help complete graphic organizer.</td>
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<tr>
<td>Students will be given a word bank/comment bank to complete assignment.</td>
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<td>Utilize peer tutoring</td>
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<td>ADHD student will need to be in close proximity of teacher during this interactive lesson.</td>
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<tr>
<td>Student will research on the computer what changes in the environment could cause the species they represented to become extinct. Students can choose to write a report on their research or create a 3-D model to represent their findings.</td>
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