**Summary Description of Assessment #4**

Observing/Determining Limiting Factors

of an Ecosystem

**Competencies:**

* Student can observe and describe a local ecosystem.
* Student can determine potential limiting factors for specified populations in a local ecosystem.

**Focus:**

🞎 Declarative knowledge

🗹 Procedural knowledge

🞎 Problem solving

**Evidence of Competency:** Students are provided two or more color photographs depicting a particular ecosystem. They are asked to describe biotic and abiotic elements within the ecosystem and also potential limiting factors for one of the biotic elements they identified. The photographs show some of the animals, plants, and abiotic components within the ecosystem. Students are scored with respect to how thorough and complete their descriptions of the ecosystem’s biotic and abiotic components are as well as how many reasonable limiting factors they identify for an organism that exists within the ecosystem.

**All assessments developed using this template should be fully consistent with its corresponding specification. The most up-to-date specification for this template can be found at http://www.cala.fsu.edu/ies/performance\_  
assessment\_specifications.**

**Performance Assessment #4**

Describing an Ecosystem at \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Taskstudents are asked to perform:

Students are provided a brief overview of what an ecosystem is. They are provided the two color photographs (see Appendix A) taken at a location on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Students are first asked to write brief descriptions of three biotic and two abiotic components within the ecosystem shown in the \_\_\_\_\_\_\_\_\_\_\_\_ photographs. Students’ description of each biotic component is to include at least one physical characteristic that is key to the organism’s reproduction or survival and the organism’s role in the ecosystem. The description of each of the abiotic components is to include the role in or the effects on organisms within the ecosystem.

Students are then asked to identify five potentially limiting factors for one organism they select from the photographs.

The assessment is not to be scored if it becomes apparent the student in familiar with less than three animals and/or plants shown in the photographs.

Related prior knowledge or skillsstudents must have:

Students are able to briefly describe what is meant by “limiting factors.”

Required materials and resources:

* The two color photographs taken at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, each 3” × 5” or larger.
* Written instruction provided in Appendix A.
* Paper on which the student’s observations are recorded for later scoring.

Instruction given student:

See *Written Instructions for Students* (Appendix A).

Guidelinesthat influence administering this performance assessment when used summatively:

* Students are to work alone to complete this task.
* The teacher may name, but not describe, items in the photographs.
* The teacher may clarify instructions not understood by a student, as long as the clarification does not provide examples of items associated with the ecosystem.
* Similarly, the teacher may prompt a student to describe what is seen in the photographs, as long as the prompting does not provide examples of items associated with the ecosystem.

Scoring Planfor this performance assessment:

Regarding all scoring plans, partial credit is never awarded for any items within the scoring plan, even when multiple points are involved. Credit is to be awarded in full or not at all.

Grammar, spelling, or other factors not directly related to the competency being assessed are not reflected in the scoring plan. Using professional judgment, however, you are encouraged to provide students feedback on these additional factors that are not assigned points in this scoring plan.

This assessment is not to be scored if it becomes apparent the student is familiar with less than three animals and/or plants shown in the photograph.

**Descriptions of Living Organisms**

|  |  |
| --- | --- |
| Student describes a physical characteristic visible in a photograph key to organism’s reproduction or survival in ecosystem for a 1st living organism. | 1 |
| Student describes a role the 1st living organism plays within the ecosystem. | 1 |
| Student similarly describes a physical characteristic of a 2nd living organism. | 1 |
| Student similarly describes a role of the 2nd living organism. | 1 |
| Student similarly describes a physical characteristic of a 3rd living organism. | 1 |
| Student similarly describes a role of the 3rd living organism. | 1 |

**Descriptions of NonlivingThings**

|  |  |
| --- | --- |
| For a 1st nonliving thing, student describes that thing’s role or how it affects organisms in the ecosystem.  Note: Nonliving thing must be visible in or reasonably inferred from photographs. | 1 |
| For a 2nd nonliving thing, student similarly describes the role or how it affects organisms. | 1 |

**For Selected Living Organism, Identification of Potential Limiting Factors**

|  |  |
| --- | --- |
| Student states a reasonable limiting factor for selected organism.  Note: Limiting factor must be a factor such as food, shelter, or disease, visible or not in photograph, reasonable for the present ecosystem. | 1 |
| Student states a 2nd reasonable limiting factor for same organism. | 1 |
| Student states a 3rd reasonable limiting factor for same organism. | 1 |
| Student states a 4th reasonable limiting factor for same organism. | 1 |
| Student states a 5th reasonable limiting factor for same organism. | 1 |

Appendix A

Written Instructions for Students

Describing an Ecosystem at \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

An ecosystem is a system of living and nonliving things that interact with each other in various ways. You can find ecosystems in parks, forests, backyards, in and near rivers and ponds, and in many other places.

On the following pages are two photographs taken at a location on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
\_\_\_\_\_\_\_\_\_. They provide two views of an ecosystem. **You will be writing a description of this ecosystem.** Look carefully at the two photographs. In your description, only describe what you can see in at least one of the photographs.

**Part 1**

Identify and describe **three living organisms** you can see in the photographs. This includes animals and plants. Write your answers on this paper.

**1st Organism:**

Name the first living organism you identified: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Describe at least **one physical characteristic** that is important to this organism’s reproduction or survival in this ecosystem:

Describe this organism’s **role or niche** within this ecosystem:

**2nd Organism:**

Name the second living organism you identified: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Describe at least **one physical characteristic** that is important to this organism’s reproduction or survival in this ecosystem:

Describe this organism’s **role or niche** within this ecosystem:

**3rd Organism:**

Name the third living organism you identified: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Describe at least **one physical characteristic** that is important to this organism’s reproduction or survival in this ecosystem:

Describe this organism’s **role or niche** within this ecosystem:

**Part 2**

Identify and describe **two nonliving things** that affect at least some of the living organisms you see in the photographs.

**1st Nonliving Thing:**

Name the first nonliving thing you identified: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Describe its role or how it affects living things within this ecosystem:

**2nd Nonliving Thing:**

Name the second nonliving thing you identified: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Describe its role or how it affects living things within this ecosystem:

**Part 3**

Now you are going to identify potential “**limiting factors**” that might limit the growth or reproduction of a living organism you see in the photographs. You may or may not see these limiting factors in the photographs, so you will have to rely on what you know to be a **reasonable** limiting factor that could affect this living organism.

Write below the name of the living organism that you will list limiting factors for:   
  
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

List limiting factors for this living organism. **For each limiting factor, explain how or why this factor might be limiting for the organism.** You will receive one point for each correct limiting factor, up to a maximum of five points.

1st limiting factor:

2nd limiting factor:

3rd limiting factor:

4th limiting factor:

5th limiting factor: