# BD05680_

**Ecological BIOME Performance Task:**

**FINAL DUE DATE: 8/28/20**

**Directions**

You are an ecological tourist and you and your friends have arrived at your desired destination. Your goal is to explore your destination and document various elements within this ecosystem. You will be assigned a specific Biome (Tundra, Taiga, Temperate Deciduous Forest, Temperate Grassland, Desert, Marine, Tropical Rainforest, Freshwater Lakes, Rivers, Streams, Wetlands). You are responsible for doing the research to learn more about your biome. This performance task has two elements that make up your final grade, which includes a product that represents your biome and answering the questions in this document. You must complete both to receive full credit, but you have a choice in what your product is. You will have the option of working on your own or in pairs.

**Product:** You may create a **video**, a biome in a **box**(shoebox or any box), a digital poster/website or any other creative way to addresses the content of the rubric. You will learn a lot as you work and I am excited to see all the beautiful and creative products you come up with.

**Example of how to create a Biome in a box:** You may use a shoebox or any other container of your choice.

Create a background that represents your ecosystem (clouds, rocks, water etc.); you may draw or paste a background on the side of the box. Make sure you include what the ground looks like (grass, snow, etc.). Background should cover the inside of the box and look like your Biome. Be sure to include at least 5 organisms that are native to the biome: plant and animals. You must also identify and include 3 abiotic factors. Make your biome box as realistic as possible; You can do it ☺.

**Analysis Question**: **Answer the questions below correctly; They account for a significant portion of your grade** **and the first half will be due by the end of the week.**

1. What country and region did you visit? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What type of Biome is your location? Justify your answer.
3. What observations did you make upon arrival to your destination; \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. How did it feel, look, sounds, smell? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. What is the climate in the area? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is the current weather? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Distinguish between climate and weather \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**SB5a. Plan and carry out investigations and analyze data to support explanations about factors affecting biodiversity and populations in ecosystems. (Clarification statement: Factors include size, carrying capacity, response to limiting factors, and keystone species.)**

Examples of Biotic factors: Should be unique to your Biome if possible.

1. 3 Flora (plants); Producers aka \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because they get energy from the sun.

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\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. 3 Fauna (animals); aka \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because they get energy by eating other organisms. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Explain their significance to organisms within this Biome: (For example: How would a change in one plant population’s size affect the others?) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. What are some predator prey relationships within your biome? Be specific: Include at least 3 different ones

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| --- | --- |
| **Predator:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **Prey:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
| 1. | 1. |
| 2. | 2. |
| 3. | 3. |

1. Research, identify and describe an endangered or threatened species in your biome and report its presently-known population numbers.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What limiting factors for this species exist in your assigned environment?

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1. Research and list a keystone species for your biome. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Why is this species considered a keystone for your biome?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. List 2 other limiting factors within your environment; explain how they lead to your carrying capacity? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**SB5b.** Develop and use models to analyze the cycling of matter and flow of energy within ecosystems through the processes of photosynthesis and respiration.

* **Arranging components of a food web according to energy flow.**
* **Comparing the quantity of energy in the steps of an energy pyramid.**
* Explaining the need for cycling of major biochemical elements (C, O, N, P, and H)
1. Below, create a food chain and label each trophic level within your biome. Identify the tropic level with the most energy and the one with the least. (You may not use a picture from the internet).
2. If the primary producer had 20,000 units of energy? How much energy would each trophic level receive? Why does this happen?

Primary Producer:

Primary Consumer:

Secondary Consumer:

Tertiary Consumer:

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1. Using the image below, explain what happens to energy as you move up the energy pyramid.



* **SB5c.** Construct an argument to predict the impact of environmental change on the stability of an ecosystem.
* **SB5d.**Design a solution to reduce the impact of a human activity on the environment. (Clarification statement: Human activities may include chemical use, natural resources consumption, introduction of non-native species, greenhouse gas production.)
1. Describe an ecological issue/ human impact affecting your Biome; How are Biotic and abiotic factors affected?

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1. What are some strategies to prevent or stop this impact on your ecosystem?

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Biome in a box Rubric:Grading: Your brochure project will be graded based on the rubric below.

**IMPORTANT**: Biomes turned in after the due date will receive a REDUCTION IN GRADE OF 10% FOR EACH DAY LATE.

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| **Biome Performance task** | Exemplary 5 | Distinguished 4 | Proficient 3 | Developing (2-0) |
| Identification and description Biome. | All 6 questions are answered correctly and comprehensively; included relevant and thoughtful reflection.  | 5-6 Questions are answered correctly but some answers lack depth  | 4-3 questions are answered correctly or lack depth | 2-1 Question/s are answered but incompletely  OR  0 none of the questions are accurate or at all.  |
| **SB5a. Plan and carry out investigations and analyze data to support explanations about factors affecting biodiversity and populations in ecosystems. (Clarification statement: Factors include size, carrying capacity, response to limiting factors, and keystone species.)** | All 9 questions are answered correctly and comprehensively; included relevant and thoughtful reflection.  | 8-6 Questions are answered correctly but some answers inaccurate or lack depth | 5-4 Questions are answered correctly but some answers inaccurate or lack depth | 3-1 Question/s are answered; most answered incompletely OR  0 none of the questions are accurate or answered.  |
| * **SB5b. Arranging components of a food web according to energy flow.**
* **Comparing the quantity of energy in the steps of an energy pyramid.**
 | Students created a realistic food chain for their biome and correctly identified each trophic level; Students correctly indicated and explained the transfer of energy within organisms.  | Students created a food chain for their biome and identified each trophic level; Students indicate and explain the transfer of energy within organisms, but 1-2 items were inaccurate | Students created a food chain for their biome and identified each trophic level; Students indicated and explained the transfer of energy within organisms, but 3-4 items were inaccurate. | Students created a food chain for their biome and identified each trophic level; Students indicated and explained the transfer of energy within organisms, but more than 4 items were incorrect or incomplete.  |
| Biome Representation: Product of your choice | Product **accurately** represents your Biome and includes, flora, fauna, and abiotic factors all native to region. Nothing is missing.  | Product represents your Biome and includes flora, fauna, and abiotic factors but 1 item is missing or not native to your biome. | Product represents your Biome and includes some flora, fauna, and abiotic factors but 2-3 items are missing or not native to your biome | Product represents your Biome and includes some flora, fauna, and abiotic factors but 4 or more are missing or inaccurate.ORThis portion was not completed. |

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| Ecological Biome Performance Task | Exemplary5pts | Distinguished4pts | Proficient3 | Developing 2-0 |
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