



Life Science Unit Major/Mini-Projects Overview

Ecology Unit

Biome Suitcase, Biome Scrapbook, Biome in a Box, OR Biome Mural (Major)
Cycles in nature Foldable Model (Mini)
Biome Summaries – Foldable Model (Mini)
Choice Board Activities (3 required)

Cellular Organization Unit

Cell Analogy or Cell Model (Major)
Human Body Systems Creative Writing/Art/Speeches (Mini)
Choice Board Activities (3 required*)

Genetics and Heredity Unit

Genetic Disorder or Engineering Research Paper (Major)
Choice Board Activities (3 required)

Evidence of Evolution Unit

Photo Story Presentation, PowerPoint Presentation (1 required) (Mini)
Choice Board Activities (3 required*)

Classification Unit

Create your own dichotomous key (Mini)
Choice Board Activities (3 required*)

Yearlong Project

Semester 1

Part 1: ABC's of Life Science Standards Illustrated Dictionary (DUE April __)

You will have two required classroom work days.

MY BIOME: _____ DUE DATE: _____

ECOLOGY BIOME PROJECT OVERVIEW

Introduction:

For this project you will need to either choose an already existing biome or artistically design and depict a biome from planet X. You must include the following:

Must Include: 10 Organisms (Must contain producers, consumers, and decomposers)

_____ 10 pts Each **consumer labeled** correctly as either herbivore, carnivore, omnivore, or decomposer

_____ 20 pts **1 Food web** with 3 distinct **food chains**

- Food chain includes a minimum 3 trophic levels
- Food chain includes a minimum of 2 producers
- Food chain includes a decomposer
- Food chain includes correctly drawn arrows and pictures

_____ 4 pts Minimum of 4 **abiotic** factors must be included and labeled

_____ 8 pts **Red** arrows showing the flow of the **carbon cycle** using all of the following terms: *photosynthesis, feeding, respiration, decomposition*

_____ 8 pts **Blue** arrows showing the flow of **water** using all of the following terms at least once: *condensation, precipitation, transpiration, evaporation*

_____ 9 pts Choose one of the food chains and draw its **energy pyramid**

- label the trophic levels
- calculate the amount of energy transferred

_____ 15 pts Identify (label and draw picture) and explain the following relationships in your biome: *commensalism; mutualism; parasitism; predator-prey; competition*

_____ 10 pts Explain and illustrate the effects of a **toxic pollutant** entering your biome. Which organisms will be affected the most?

_____ 10 pts What would decrease the **carrying capacity** of one of your organisms in your biome? List 3 examples

_____ 15 pts Illustrate a **natural or human disturbance** in your biome. Identify the type of **succession** and its effects on **biodiversity**

_____ 10 Neatness/Clarity/ Creativity

_____ **100 TOTAL POINTS**

There are **four** ways to prepare your Biome Project. You may choose to do a poster board, a Scrapbook or a Biome Suitcase. **All four choices must include all the above.** Attached to this sheet there are specific instructions on where to place your information in each of the choices

Biome Project Choices

Choice One

Biome Poster/Mural

Front of poster:

You will give an illustrated representation of your biome which includes all 15 organisms with the consumers labeled accordingly, the 3 food chains, the abiotic factors, and the carbon and water cycle arrows.

Back of Poster:

You will include the energy pyramid, the 5 relationship examples with their explanations, the illustrations and explanations of: toxic pollutant, carry capacity, and the human or natural disaster to your biome.

Mural – All of the above poster components should be placed on ONE side of mural paper.

Choice Two

Biome Scrapbook:

1 pg: Cover page that gives the name of your biome.

1pg: The food web with all 15 organisms and the consumers labeled.

1pg: Four abiotic factors in your biome

1-2pg: Carbon and water cycles with the corresponding labels

1pg: Energy pyramid

1pg: Five relationships

1pg: Toxic pollutant

1pg: Carrying capacity

1pg: Natural or human disturbance.

Choice Three

Biome Suitcase: Using a Manila Folder and some construction paper and index cards you will construct a suitcase for your upcoming travel to that biome.

Outside of Manila Folder:

One Side includes the food web including the 15 organisms and the labeled consumers.

The Other side put all five relationships.

Inside of Manila Folder

One Side: You will include the illustration and the explanation of the natural or human disaster that occurred in your biome.

Other Side: You will make a minimum of 6 small pockets with the following labels:

Abiotic, Carbon Cycle, Water Cycle, Energy Pyramid, Toxic Pollutants, Carrying Capacity

Choice Four

Biome in a Box (Diorama): For this project, you must create a three-dimensional box, and complete a writing component. SLIGHTLY DIFFERENT REQUIREMENTS THAN THE ABOVE LISTED.

The Box

The inside of your box must include:

- The inside walls should be decorated (covered with pictures or construction paper, or painted).
- Use different types of material to show examples of flora (flowers) and fauna (animals).
- Show the terrain of your biome (mountainous, flat, hilly, sandy, etc) using materials.

The outside of your box must include:

- The outside walls should be covered with construction paper or painted.
- Include a written description of your biome's characteristics. These may be bulleted
- Left side wall- precipitation (inches or centimeters), temperature (high and low, Celsius or Fahrenheit), 5 animals and 5 plants with at least 2 adaptations for plants and animals.
- Right side wall- map showing locations (map key/color coded), locations (country and continent) written under map, terrain, and 2 natural resources.

Back wall - The food web with all 15 organisms and the consumers labeled.

Four abiotic factors in your biome Carbon and water cycles with the corresponding labels Energy pyramid, and Five relationships

Writing Component

Choose one of the following writing topics. You must have at least 1 paragraph with 8-10 sentences for the topic you choose. Remember, you are the expert on your biome.

- Pretend you are an animal or plant from your biome. Write an autobiography describing your life and interactions that you have in your biome with the other plants and animals, terrain, temperature, etc. The conclusion of your paragraph should tell why you choose your animal or plant.
- Pretend you are a travel agent. Create a written brochure convincing people to book a vacation to your biome. Use your biome's characteristics in your brochure to make people want to travel there.
- Pretend you are a forest ranger. Write a detailed guided tour of your biome that you would give to a group of people visiting from a large city. To educate the people taking the tour of your biome, be sure to include characteristics of your biome.