Name: ____

I Abide by the Honor Code.

AP Biology Summer Assignment

Introduction:

AP Biology is an Introductory College Biology Course for Biology Majors. This course differs significantly from the usual high school course with respect to the range and depth of topics covered, the kind of laboratory work done by students, and the time and effort required by students. This course is for highly motivated students to have the opportunity to complete rigorous course material that is <u>equivalent to a freshmen college course</u>.

With that said, AP Biology really is a fun subject! While a lot of time is required, it is not impossible to be successful.

This summer, you'll be exploring how we use Ecology in AP Biology. Ecology is the study of interactions between organisms and their environment. You will be focusing specifically on Elephants. Elephants are considered "ecosystem engineers" because they can significantly modify their habitat. The presence and abundance of elephants can serve as indicators of ecosystem health. Healthy elephant populations often coincide with intact and well-functioning ecosystems. Conversely, declines in elephant populations may signal ecological degradation, habitat fragmentation, or other environmental stressors that can impact biodiversity.

Assignment:

- You are going to be creating a researc project on Elephants and their impact on Ecology. You may use notability to create a note document, canva, or google slides. Neatness, thoroughness, and creativity do count. Take your time researching and gathering the material in a good way to present.
- 2. Conclusion: **Read** the following sections on ecology, **annotate** your reading, and **answer** the questions at the end of each section. You may circle the multiple choice answers, but be sure to answer the short and long response questions on a separate document.

https://drive.google.com/file/d/1Vi-AvIe7J2NAvp2Swb0J02NHd0qJ62bx/view?usp=sharing

Assignment Resources:

You will need to sign in with your BVHS email <u>https://drive.google.com/file/d/1Vi-AvIe7J2NAvp2Swb0J02NHd0qJ62bx/view?usp=sharing</u>

Due:

Submit via file upload to Canvas Monday, August 12, 2024. This assignment is a project grade, so do your best!

Please email me if you have any difficulty with this assignment. trisha.calfee@bvhs.org

Elephant Ecology Summer Project

Title Page

First Page - Intro:

Watch this video - <u>https://www.youtube.com/watch?v=Aw6GkiCvcWs</u> and then explain the five facts about elephants.

Second Page: Energy flow through a community

Watch this video: <u>https://www.youtube.com/watch?v=-oVavgmveyY</u> A food web shows feeding relationships among organisms. An arrow means "gives its energy to"

Use the Elephant Food Web below, and describe the flow of energy for the elephant starting at primary producer using "gives its energy to" each time. **Make sure the elephant is in your pathway.**

For example, "Star Grass gives its energy to the Gazelle. The Gazelle gives its energy to the Lion".

Using the food web below, Define and give examples of the:

Producers, Primary Consumers, Secondary Consumers, Tertiary Consumers, Quaternary Consumers, and Decomposers.

Copy and paste this food web into your presentation





Third Page: The 10 Percent Rule

Watch this video: <u>https://www.youtube.com/watch?v=-oVavgmveyY</u>

Create an Energy Pyramid based on the Elephant Food Chain above. Label the trophic levels, and give an example of an organism at each level (elephant being one of them).

What is the 10 PErcent Rule from the video?

How much energy is lost between trophic levels? Indicate this on your energy pyramid. Which level contains the most biomass? Why?

Fourth Page: Keystone Species

ENERGY PYRAMID

Define Keystone Species. Be sure to include that without keystone species, the ecosystem would be dramatically different or collapse. Read this <u>ARTICLE</u>, and Describe 4 ways that elephants increase biodiversity, and maintain the ecosystem.

Fifth Page: Keystone Species cont.

Read this <u>ARTICLE</u> Using only this article, describe and explain how otters are a keystone species. Include how the loss of otters results in a trophic cascade.

Sixth Page: Invasive Species

Read this <u>ARTICLE</u>

Define Invasive Species.

Explain the three invasive species found in Florida. What are they? Why are they invasive? What is the environmental and economical impact of these species?

Seventh Page: K-Selected vs r-selected species

Watch this video: <u>https://www.youtube.com/watch?v=Bu6ouKt9zhs</u> Give me 4 examples of each type. (include elephants in one of them) List the characteristics of each type -take these characteristics from the video!

Eighth Page: Survivorship Curves

Read this <u>ARTICLE</u> What are the three survivorship curves? Draw the diagram, and explain each type. Type 1, Type 2, Type 3 Which one represents elephants?

Types of Elephants



Ninth Page: Density Dependent vs Density Independent Limiting Factors

What are density dependent and density independent factors? <u>ARTICLE</u> Research and give examples of each of these factors that affect the elephant population.

Tenth Page: Symbiotic Relationships

Watch this video: <u>https://www.youtube.com/watch?v=rNjPI84sApQ</u>

Make a chart like this comparing them. You need TWO examples for each. Make sure you include an Elephant example in one of them!

Relationship	Description	ls this a +/+, +/-, +/0?	Species Example(s)
Mutualism			
Commensalism			
Parasitism			

Conclusion:

Read the following sections on ecology,annotate your reading, and answer the questions at the end of each section. You may circle the multiple choice answers, but be sure to answer the short and long response questions on a separate document. <u>https://drive.google.com/file/d/1Vi-AvIe7J2NAvp2Swb0J02NHd0qJ62bx/view?usp=sharing</u>