Acquisition Lesson Plan

Learning Map Unit Name : Ecosystems and their interacti
Lesson Plan Name (Learning Map concept): Ecosystems
Teacher Name : Glassmann

ESSENTIAL QUESTION:

What is the effect of limiting factors on population dynamics and potential species extinction?
PA Standard 4.1.10.A Examine the effects of limiting factors on population dynamics.
Keystone Eligible Content B.4.2.5 Describe the effects of limiting factors on population dynamics and potential species extinction.

What do students need to learn to be able to answer the Essential Question?

Assessment Prompt: What are the limiting factors and their effect on living things
Assessment Prompt: What are the current threats to biodiversity in a particular ecosystem
Assessment Prompt: What is the value of biodiversity in a particular ecosystem

ACTIVATING STRATEGY:

Why do we need plants and animals on earth? Think, pair, share on front board with sticky notes

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Key vocabulary to preview:

biodiversity, habitat, carrying capacity, limiting factor, invasive (introduced) species, threatened, endangered, extinct.

TEACHING STRATEGIES:

Graphic Organizer: word map, graphs

Instructional Strategies: data graphing, research, presentation,

Assessment Prompt description: Food, Water, Shelter, Cover are limiting factors for the PA deer population. Activity graphing deer population searching for limited factors while trying to match their needs. Graph deer population number after each event. Deer population starts off as 25% of student class size trying to match their needs. Pairs return as deer population.

Assessment Prompt description: What are the current threats to biodiversity Carrying capacity of the Kaibob Deer. worksheet and graphing. Notes from interactive board.

Assessment Prompt description: What is the value of biodiversity Planet Earth video volume 5 "Saving Species chapter 2-4. Notes from interactive board. Research an endangered organism that is present in your biome research project and complete the project requirement.

Extended Thinking Activity: What is the carrying capacity of a healthy deer population?

SUMMARIZING STRATEGIES (used throughout the lesson): vocabulary quiz before lesson. lab

write-up stating manipulated and responding variables or cause and effect.

Limiting factors on deer populations.

Each student gets a set of four cards.

25% of the class (DEER) stand in a line across from the factors (75% of students).

Matched cards can return as deer to increase population.

Unmatched deer remain as factors.

After each event, record the number of deer. Run 10 events. Each event represents 5 years.

Bring data into class and have student record and graph population size.

Answer analysis questions.

Lab Write-up

I) Title: Limiting Factors on Deer Population

II) Purpose: How can we determine how limiting factors can effect the population of an organism?

III) Hypothesis: If the factors essential for survival are limited then the population relying on those factors will be reduced.

IV) Data: Table and graph the data

V) Analysis:

1. Restate whether your hypothesis was supported or refuted.

2. List the limiting factors for the deer population.

3. Describe the relationship between limiting factors and the number of deer in the herd.

4. What was the maximum number of deer the habitat could support and why?

5. Over 50 years, how many times did exponential growth become apparent?

6. Define: "Biodiversity"

7. What do you think could be done to maintain a more stable population of deer and a healthier habitat?

8. Describe the carrying capacity of this habitat.

9. How could this lab be improved?