



7th Grade EdZoocational Adventure Guide

Theme: Ecosystem Check

Grade level: 7th

DESE Standard: 7-LS2-2 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

Overview: If we consider an ecosystem similar to a large corporation, we can organize and discuss the various positions each animal fills within it. As with any corporation, there is a distinct hierarchy of animals within the ecosystem. Apex predators help control the population of individuals within the ranks beneath them. There may be predators beneath the larger ones completing similar tasks with other species. There are animals whose "job" is to help grow new plants by eating fruits and dispersing the seeds when they defecate. There are even clean-up crews who get rid of the scraps the higher-ups leave behind. Every creature has a distinct job, or niche, within the organization. Sometimes, you may even find different animals completing the same type of job, but on different shifts (diurnal versus nocturnal).

Activity: The activity sheet focuses on the relationships of animals living in similar regions of Africa. Students will document the role of the each animal and its relationship to at least one other animal in it's region. Then, write how that animals role is significant to the ecosystem to which they belong.

Activity Extension: Apply these same discussions to a different region, or ecosystem, around the world. Are there similar hierarchies of species? Are there different animals filling roles similar to those discussed in Africa? What type of "corporation" exists here in Arkansas?

7th Grade Tour Guide

This self-guided tour takes your class along a path to exhibits with animals that live in the same regions but have different roles within it. This path does not cover the entirety of the zoo, but is meant to accentuate the lesson narrative.

- As you enter, head past Penguin Pointe and the elephants. Turn right at the alpacas.
- Remind students that calm, quiet guests see more animals. Loud noises send them into hiding making them harder to find.
- **African Lion:** African lions are apex predators of the African Savannah. Their biggest role in benefiting the African ecosystem is to help with population control of larger herbivores in the area including zebras and buffalo. This deters overgrazing of the land. When lions keep herbivore populations balanced, they help maintain the condition of grasslands and forests.
- **Serval:** Akita and Louise are a part of population control in Africa. Unlike the larger carnivores, servals eat a variety of smaller animals that include rodents and birds. In just one year, a serval can hunt up to 1,000 rodents. Not only are they managing population of the rodents, they remove rodents which may carry diseases harmful to other populations. This makes them one of the best natural pest controls in their habitat.
- **Sulcata (Seasonal)** Sulcata tortoises help maintain vegetation in poorly soiled and arid ecosystems. When Sulcata Tortoises eat the plants around them, the seeds will pass through their feces onto the ground. This makes them very successful seed dispersers. Their feces also serves as a fertilizer to promote plant growth, adding to the limited resources and nutrients in the area.
- **Cheetah** Padfoot, Prongs, and Maggie are another apex predator in the African Savannah. They assist lions in controlling the herbivore population, which helps maintain a high quality ecosystem. While lions take on large prey, cheetahs manage the smaller plant-eaters like antelope and rabbits. If cheetahs were removed from the ecosystem, the vegetation would be overly eaten that could lead to soil erosion and vegetated areas turning into deserts.
- **Ostriches:** Ostriches play a role as predator alerts within grazing groups. Ostriches have very large eyes, about the size of billiard balls, giving them excellent vision. If they spot a predator, they will create a booming noise that alerts other animals nearby. Ostriches can be found grazing with gnus, giraffes, zebras, and other herbivores. They are welcomed by these groups due to their high efficiency in predator alerting.
- **Zebras** Zebras play varying ecological roles in Africa. Zebras maintain the vegetation by grazing on the dry and hardened grasses that are too tough for other herbivores to eat. This clears the way for the growth of new grasses and plants. Zebras are also a food source in for lions and hyenas.
- **Rhinos** Jahari, Andazi, and Kevin are considered keystone species of Africa and have big ecosystem roles. One, they help reshape the land over time by wallowing; creating brand new watering holes. Two, they spread nutrients through their feces since they can eat up to 50kg a day- while providing food for other animals like the dung beetle. Three, they play hosts to parasites that are food for other animals like the ticks that are preyed upon by oxpeckers at watering holes. They also maintain the vegetation around them.
- **Crowned Cranes:** Crowned cranes play dual roles in their environment. They are omnivores and their diets consist of different vegetation as well as smaller animals including fish and insects. Not only does this make them valuable seed dispersers, but also population control in their ecosystem. Preferring to live in the African wetlands, crowned cranes are especially important as an environmental indicator species. They only nest in the healthiest of areas, so their presence indicates a quality ecosystem. Their absence lets scientists know that the habitat is not a healthy one.

How do animals interact with each other?

Animal	Role of Animal in Ecosystem	Relationships	Significance
African Lion	Predator, consumer	Eats prey species such as zebra	Predators keep down prey populations
Serval			
Sulcata Tortoise			
Cheetah			
Ostrich			
Zebra			
Rhino			
Crowned Crane			

INSTRUCTIONS

Use this field journal to explore the relationships of the animal kingdom while on your visit to the Little Rock Zoo!

On your tour, think about how these animals serve their ecosystem as well as how they interact with each other.

1. For each animal listed, think about what role that animal plays in its ecosystem. Is it a predator, prey, producer, consumer, etc.?
2. Explain how that animal relates to other animals on the list
3. Write what the significance of that relationship and role is on that animal's ecosystem.

CONNECTIONS:

What role do you play in your family? How does your role relate to your parents' roles?



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