Prairie Layers

Build a model of life from one species to a biome

L.6.3.2 "Develop and use models to describe the levels of organization within ecosystems (species, populations, communities, ecosystems, and biomes)."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Circle the first use of each level name, then underline its prairie example. Number the five examples from a kind of organism (1) to a broad region (5).

A Prairie, Up Close and Far Away

(1) At sunrise, a black-tailed prairie dog pops out of a burrow on a wide prairie. Its sharp call sends nearby prairie dogs underground. A species is one kind of living thing whose members can usually have young together. Black-tailed prairie dogs belong to one species, whether they live on this prairie or far away. All the black-tailed prairie dogs living in this one patch form a population. They share an area, but not every prairie dog of their species lives here. This difference matters when scientists build a model of life on the prairie.

(2) The prairie dogs do not live alone. Western wheatgrass grows above their tunnels, badgers hunt nearby, and dung beetles break down animal waste. Each kind has its own population in the patch. Together, these populations make a community: all the different living populations that share this area. The community changes when rain helps grass grow or dry weather leaves less food. To model more than living things, include the patch's soil, air, sunlight, and rain. These nonliving parts interact with the community in an ecosystem.

(3) Zoom out from this patch and you will find many other prairie ecosystems. They do not all contain the same number of prairie dogs or the same mix of plants. Across a much larger area, similar grasslands have seasonal temperatures and enough rain for grasses to grow, but usually not enough for forests. This broad region is a temperate grassland biome. A model can show how one local population joins other populations in a community, how that community interacts with nonliving parts in an ecosystem, and how many related ecosystems fit within a biome.

2 ANSWER WITH EVIDENCE

Use the passage

1. A black-tailed prairie dog lives far from the patch in the passage. Is it part of the same species, the patch's population, both, or neither? Explain.

2. Build a community model for the patch by naming three populations that live there. Why is this more than one population?

3. Add two parts to the community model to make it an ecosystem model. What kind of parts did you add?

4. Where does the patch's ecosystem fit in a larger model, and what do other ecosystems at that level have in common?

3 YOUR TURN

Your own words

Choose a forest or desert setting different from the prairie. Write a five-level model that names a species, a local population, a community, an ecosystem with two nonliving parts, and a biome, then add one sentence explaining how the model grows.

ANSWER KEY

Prairie Layers

GRADE 6 · L.6.3.2

PART 1 · READ AND MARK

Circle the first use of each level name, then underline its prairie example. Number the five examples from a kind of organism (1) to a broad region (5). Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	A black-tailed prairie dog lives far from the patch in the passage. Is it part of the same species, the patch's population, both, or neither? Explain.	**It is part of the same species, but not the patch's population because it does not live in that patch.**
2	Build a community model for the patch by naming three populations that live there. Why is this more than one population?	**Prairie dogs, western wheatgrass, and badgers are three populations in the patch. Together they are a community because they are different kinds of living things sharing an area.**
3	Add two parts to the community model to make it an ecosystem model. What kind of parts did you add?	**Add soil and sunlight. They are nonliving parts of the ecosystem.**
4	Where does the patch's ecosystem fit in a larger model, and what do other ecosystems at that level have in common?	**It fits within the temperate grassland biome. Other ecosystems in that biome have similar grassland conditions, including seasonal temperatures and rainfall that supports grasses.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Species: eastern gray squirrel
Population: eastern gray squirrels on one wooded hillside
Community: eastern gray squirrels, red oaks, and turkey tail fungi on that hillside
Ecosystem: that hillside's community, soil, and sunlight
Biome: temperate deciduous forest
The model grows from one kind of organism to populations sharing a place, then includes nonliving parts and reaches a broad region of related ecosystems.

Accept other scientifically sound forest or desert models. A population must identify members of one species in a local area, and an ecosystem must include living and nonliving parts.