Forest Within Forest

Trace how one living thing fits into larger ecological systems.

BIO.5.1 "Illustrate levels of ecological hierarchy, including organism, population, community, ecosystem, biome, and biosphere."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Circle one example of each ecological level in the passage. Number your six circles from 1, smallest, to 6, largest, to show how the levels fit inside one another.

A White Oak's Wider World

1 At dawn in a Virginia forest, a single white oak catches the first sunlight. That tree is one organism, a living individual. In the same valley, many white oaks grow near one another. All the white oaks living in that valley form a population because they belong to the same species and share a place. Some are seedlings, while others are old enough to produce acorns. A squirrel may carry an acorn away, but it does not become part of the white oak population. The population includes white oaks only, regardless of their age or size.

2 Near those oaks, squirrels, mosses, and fungi also live. Together, all the populations of different species in the valley make up a community. The fungi break down fallen leaves, and squirrels eat or bury acorns. Rain, soil, air, and sunlight affect these living things, although none of them is a living population. Include those nonliving parts and their interactions with the community, and you are describing the valley's ecosystem. A dry summer can slow oak growth; fewer acorns may then be available to squirrels. This change can ripple through relationships among living things in the same place.

3 The valley is one small part of a temperate deciduous forest biome. Across large areas of this biome, seasons bring cold winters and warm summers, and many trees drop their leaves. Different valleys can have different species, but they share broad climate patterns and similar kinds of plant life. A biome contains many ecosystems, not just one patch of trees. Beyond this biome lie grasslands, deserts, oceans, and other regions where life exists. Together, every place on Earth where organisms live, and all its living things, belongs to the biosphere. Its reach includes deep ocean water and high mountain slopes.

2 ANSWER WITH EVIDENCE

Use the passage

1. Why would one white oak be labeled an organism, but all the white oaks in the valley be labeled a population?

2. A boundary includes every living population in the valley but leaves out soil and sunlight. Which level does it show? What must you add to show the next larger level?

3. In a nested sketch, should the valley ecosystem go inside the temperate deciduous forest biome or around it? Explain using the passage.

4. A sketch places the biosphere inside the forest biome. How should you correct the sketch?

3 YOUR TURN

Your own words

Choose a natural setting other than a forest. Draw six nested shapes to show its ecological levels, and label each shape with its level and a specific example from your setting.

ANSWER KEY

Forest Within Forest

PART 1 · READ AND MARK

Circle one example of each ecological level in the passage. Number your six circles from 1, smallest, to 6, largest, to show how the levels fit inside one another. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Why would one white oak be labeled an organism, but all the white oaks in the valley be labeled a population?	**One white oak is a living individual. All the white oaks in the valley are individuals of the same species living in one place.**
2	A boundary includes every living population in the valley but leaves out soil and sunlight. Which level does it show? What must you add to show the next larger level?	**It shows a community. Add nonliving parts, including soil and sunlight, and their interactions with the living things to show the ecosystem.**
3	In a nested sketch, should the valley ecosystem go inside the temperate deciduous forest biome or around it? Explain using the passage.	**The valley ecosystem goes inside the biome. The valley is one small part of the biome, which contains many ecosystems.**
4	A sketch places the biosphere inside the forest biome. How should you correct the sketch?	**Place the forest biome inside the biosphere. The biosphere includes every place on Earth where organisms live, including places beyond that biome.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Six nested circles, from center outward: organism, one saguaro cactus; population, all saguaros in one Sonoran Desert plot; community, all living populations in the plot, including saguaros and ants; ecosystem, the plot's community interacting with sandy soil and sunlight; biome, desert; biosphere, all places on Earth where organisms live.

Accept different natural settings if all six levels are nested in the correct order. The population must contain one species in one place, and the ecosystem must include nonliving parts.