



QUESTION THE ANSWER

Materials:

- ☆ examples of answers such as those found on the Teacher Information Sheet.

Rationale

New vocabulary is required to understand biological diversity, its values and the problems that must be addressed in order to maintain it.

Objectives

1. Students will demonstrate critical and divergent thinking as they use terms related to biological diversity.
2. Students will become aware that questions may have more than one answer.
3. Students will learn to appreciate the divergent thinking of other students.

Procedure

1. Before students come into the classroom, post an answer to a question in this manner: *The answer is second-growth forests. What is the question?* The question may be posted on the board, a large sheet of paper or a flash card (just so it can be read throughout the room). Remind students that they should think

about the question as it relates to the concept of biological diversity. NOTE: See the teacher page for a list of possible questions/answers.

2. Have students pose as many questions as possible for the answer. A time limit can be set or this can be an on-going activity. You may use one question per day as a opening activity, or spend one or more class periods "questioning the answers."
3. The activity can be used for brainstorming with no prior teaching on the subject, for evaluation after teaching the subject, as a research project, or as a quiz-bowl type activity for class teams.

Extensions

1. Instead of biological diversity in general, concentrate on one of the state's natural divisions or an specific community with high species diversity such as a wetland, prairie or forest.
2. Divide the class into six groups and assign each group one of Arkansas's six natural divisions. Have students do research on their division and devise a list of questions for a "question the answer" session. The questions can be rotated through the teams to present additional research opportunities.
3. Concentrate on questions revolving around land-use problems in Arkansas. Have students brainstorm

answers to them. Are the problems the same/similar in all areas of Arkansas? Will the same solutions work in all parts of the state? Why or why not?

Correlation to National Science Standards
Life Science
Unifying Concepts and Processes

Correlation to Arkansas Frameworks
Science: K-4: LS.2.10, LS.2.1, LS.3.1, LS.3.3
5-8: LS.2.4, LS.2.9, LS.2.12
9-12: LS.2.10, LS.2.13, LS.2.18, LS.3.3, LS.3L1, ES.2.3, ES.2.9

Question the Answer

Possible Answers:

The Answer Is:

Biodiversity	Alien/exotic species	Community	Predator control	Indicator species
Restoration	Species diversity	Wetlands	Ecosystem	Habitat
Mutualism	Land management	Succession	Sustainable development	Nutrient cycling
Environment	Producer	Consumer	Decomposer	Carrying capacity
Abiotic factors	Niche	Energy flow	Evolution	Natural selection
Land systems	Resources	Renewable	Nonrenewable	Climate
Geology	Aquatic systems	Recycle, reuse, reduce		Greenhouse effect
Reducing deforestation		Population distribution		Nutrient cycling
Think globally, act locally		Environmental heterogeneity		
Sustainable development		Conservation of biodiversity		

Possible Questions:

The answer is wetlands. What is the question?

What is an easy and cheap mechanism that a state can use to control floods? What is the name for areas that are located where ground water stands at or near the surface of the ground? Beavers build dams that often flood large areas of meadows or forests; what are these flooded areas called?

The answer is indicator species. What is the question?

On what might a scientist do research if he or she wanted to gain information on the overall condition of an ecosystem? The status of the overall condition of species in an ecosystem could be determined by studying the status of what? Lichens, brown trout and spiderwort give environmental information, therefore they are considered to be ____?

The answer is predator elimination. What is the question?

The deer population has begun to strip the north side of Magazine Mountain; what could help remedy this situation? Past attempts to eradicate wolves in order to protect livestock was known as ____? The overgrazing of many parks, such as Yellowstone, has occurred because of what past environmental practice?

The answer is predator control. What is the question?

What could have contributed to the increase in the number of elk that were relocated to the upper areas of the Buffalo National River? What practice has often led to such a large increase in whitetail deer populations that starvation and disease deplete the herds?

The answer is geology, climate, soil, plants & animals. What is the question?

What are the components of an environment? What characteristics of an ecosystem affect biological diversity? What are some factors that can determine land use in a particular area?

The answer is mutualism. What is the question?

What is one of the most common types of symbiosis? What is the algae-fungal relationship that makes up a lichen? In what type of a relationship do two unrelated species coexist and benefit?

The answer is succession. What is the question?

What process begins with pioneer organisms and ends with a climax community? Moving from bare rock to mosses to shrubs to forestland is known as? What is the gradual change of one ecosystem type to another?

The answer is decomposer. What is the question?

Organisms that reduce organic waste to soil are known as? Bacteria and fungi are examples of what trophic level?