B

Biology Standard
B.6.a.

Teacher's Masters

California Education and the Environment Initiative

Biodiversity: The Keystone to Life on Earth

California Education and the Environment Initiative

Approved by the California State Board of Education, 2010

The Education and the Environment Curriculum is a cooperative endeavor of the following entities:

California Environmental Protection Agency
California Natural Resources Agency
Office of the Secretary of Education
California State Board of Education
California Department of Education
California Integrated Waste Management Board

Key Leadership for the Education and Environment Initiative:

Linda Adams, Secretary, California Environmental Protection Agency
Patty Zwarts, Deputy Secretary for Policy and Legislation, California Environmental Protection Agency
Andrea Lewis, Assistant Secretary for Education and Quality Programs, California Environmental Protection Agency
Mark Leary, Executive Director, California Integrated Waste Management Board
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Key Partners:

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Contents

Lesson 1 Biodiversity—Earth's Living Riches

None required for this lesson.

Lesson 2 We Need the Diversity of Life on Earth

None required for this lesson.

Lesson 3 Changes in Biodiversity

None required for this lesson.

Lesson 4 How People Influence Biodiversity

None required for this lesson.

Lesson 5 The Implications of Losing Species

None required for this lesson.

Lesson 6 Making a Difference

None required for this lesson.

Assessments

Biodiversity: The Keystone to Life on Earth—Traditional Unit Assessment Master 2

California Biodiversity Action Plan—Alternative Unit Assessment Master 5

Peer Review Form—Alternative Unit Assessment Master 9

Name: _____

Part 1

Instructions: Select the best answer and circle the correct letter. (3 points each)

1. Biodiversity refers to _____.
   a. the combination of biotic and abiotic components of an ecosystem
   b. all of the types of organisms that have ever lived on Earth
   c. the number of kinds of organisms in a given area
   d. the total number of organisms living in an ecosystem

2. Which of the following would you expect to have the highest level of biodiversity?
   a. an apple orchard
   b. an oak woodland
   c. an agricultural field
   d. an urban area

3. An ecosystem with a high level of biodiversity has _____.
   a. many different species
   b. a population of similar species
   c. a large number of living things
   d. many individuals of the same species

4. A decrease in biodiversity can be *directly* caused by _____.
   a. habitat loss
   b. climate
   c. overpopulation
   d. resources

5. A loss of species means _____.
   a. a change in habitat
   b. a growth in populations of predators
   c. conservation easements
   d. a decrease in biodiversity

6. A decrease in biodiversity will _____.
   a. affect goods and services produced by ecosystems
   b. let ecosystems function better
   c. provide new habitats for a greater number of species
   d. help nutrients to cycle between biotic and abiotic factors

Name: _____

7. A high level of biodiversity is important to natural systems because _____.
   a. the oceans need many organisms
   b. the health of ecosystems depends on interactions among species
   c. all natural processes would stop if there were only one species
   d. all species would become extinct if habitats were lost

Part 2

Instructions: Complete each of the following tasks in three or four sentences. (5 points each)

8. Give two examples of human activities that can influence the biodiversity of natural systems.

_____

_____

_____

_____

_____

_____

_____

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_____

9. Describe how the loss of a species affects human communities.

_____

_____

_____

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_____

Name: _____

10. How does human population growth affect consumption and the production of byproducts?

_____

_____

_____

_____

_____

_____

_____

11. How does human population growth affect biodiversity?

_____

_____

_____

_____

_____

_____

_____

Name: _____

As a Californian, you are interested in protecting the wide range of species living in the state. You know that the state's human population is growing. You also know that everyone depends on ecosystem goods and ecosystem services provided by diverse natural systems.

Your task is to propose a specific action you think will help to protect species or habitats in California. Use your imagination. A few possibilities include:

- a new program to promote ecologically sound agricultural or fishing practices
- purchase of land to protect a specific species or type of habitat
- setting up conservation easements on private property
- an action to protect or restore an endangered species
- organization of volunteer action (for example, to remove an invasive plant from a nature preserve)
- an effort to educate the public about ways in which individuals can make a difference in the state's efforts to protect or restore species
- regulation or incentives to reduce effects of pollution on sensitive habitats
- a program to lower consumption rates and increase rates of recycling

Instructions: Prepare a paper describing your proposal. In your proposal, be sure to address all of these questions. Use the **California Biodiversity Action Plan Scoring Tool** on the next page to guide your writing.

1. Introduction

a. What is meant by the word "biodiversity"?

b. Why is biodiversity important in California?

c. How do human population growth and activity affect biodiversity in California?

2. Action Plan

a. What problem or issue does your proposal address?

b. What type of action do you propose?

c. In which bioregion will your action occur? Why did you select that bioregion?

3. Justification

a. Why is this action important to people?

b. What changes to natural systems would result from your proposed action, and how would this affect biodiversity?

c. What types of ecosystem goods and ecosystem services would be conserved or protected?

4. Conclusion

a. Why does loss of species matter to natural systems and to humans?

b. How would your proposed action help to meet the needs of natural communities and the growing human population in California?

Name: _____

California Biodiversity Action Plan Scoring Tool

Criteria	Points Possible	Points
Introduction		
Correctly defines biodiversity	2	
Accurately portrays importance of biodiversity to California	2	
Explains the influence of human population growth and activity on biodiversity in California	2	
Action Plan		
Identifies an appropriate problem or issue to address	2	
Identifies an appropriate action related to biodiversity in California	2	
Justification		
Describes the importance to humans of the proposed biodiversity-related action	2	
Accurately identifies changes to natural systems that would result from this action and the resulting effects on biodiversity	2	
Identifies types of ecosystem goods and ecosystem services to be conserved or protected	2	
Describes the proposed action and presents a convincing case for the recommended action	2	
Conclusion		
Describes the implications of loss of biodiversity to natural systems and human societies	2	
Explains how the proposed action will help to meet the needs of California natural communities and the state's growing human population	2	
TOTAL (Maximum = 22 points)		

Assessment Scale

0 – Does not meet requirements of the task

1 – Adequately meets requirements of the task

2 – Meets requirements of the task in superior fashion

Name: _____

Instructions: Describe each component of your **California Biodiversity Action Plan** in the spaces provided.

1. Introduction

2. Action Plan

Name: _____

3. Justification

4. Conclusion

Name: _____

California Biodiversity Conference

Instructions: Use the **Peer Review Form** to review three **California Biodiversity Action Plans** developed by fellow students. (Additional copies of the form are available as needed.) Provide constructive reviews. You will have 10 minutes to conduct each review. **Peer Review Forms** will be collected at the end of class.

Proposed Action to Conserve or Preserve the State's Biological Resources
What type of action does this proposal discuss?

_____

_____

_____

_____

_____

Provide feedback about the idea presented in this proposal.
I especially like:

_____

_____

Suggestions to strengthen the ideas presented in this proposal:

_____

_____

One thing I learned from this proposal is:

_____

_____

_____

_____

_____

_____

_____

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