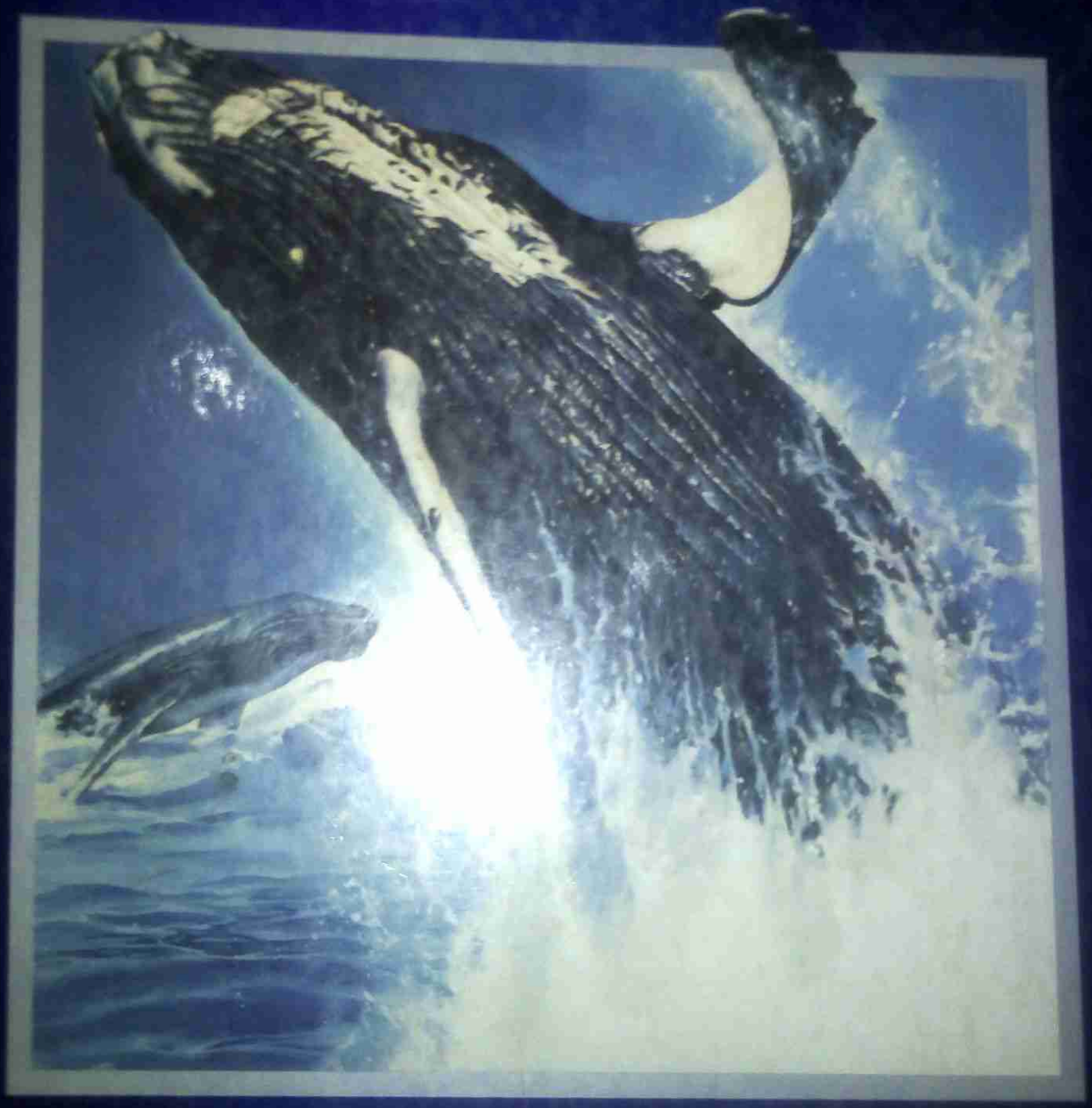
SCIENCE

Annotated Teacher's Edition

ECOLOGY

Earth's Living Resources



Annotated Teacher's Edition

Prentice Hall Science

Ecology

Earth's Living Resources

Anthea Maton
Former NSTA National Coordinator
Project Scope, Sequence,
Coordination
Washington, DC

Jean Hopkins
Science Instructor and Department
Chairperson
John H. Wood Middle School
San Antonio, Texas

Susan Johnson
Professor of Biology
Ball State University
Muncie, Indiana

David LaHart
Senior Instructor
Florida Solar Energy Center
Cape Canaveral, Florida

Charles William McLaughlin
Science Instructor and Department
Chairperson
Central High School
St. Joseph, Missouri

Maryanna Quon Warner
Science Instructor
Del Dios Middle School
Escondido, California

Jill D. Wright
Professor of Science Education
Director of International Field
Programs
University of Pittsburgh
Pittsburgh, Pennsylvania

Prentice Hall
A Division of Simon & Schuster
Englewood Cliffs, New Jersey

ISBN 0-13-985862-8

3 4 5 6 7 8 9 10 95 94

CHAPTER 1

Interactions Among Living Things

***ENERGY**	• In general, food and energy in an ecosystem flow from the producers to the consumers, and finally to the decomposers. • Producers capture light energy, which cannot be used by consumers, and change it into food energy, which can be used by all living things. • Energy is lost from the chain at each feeding level in an ecosystem.
***EVOLUTION**	• Species evolve in response to the challenges of their environment. • Interactions among organisms can affect the directions in which organisms evolve.
***PATTERNS OF CHANGE**	• Each time a change occurs in an ecosystem, an adjustment in the ecosystem's balance is required. • Organisms change and are changed by their environment. • Changes in the environment may be slow or rapid and may involve individuals, species, or entire communities.
SCALE AND STRUCTURE	• The world can be divided into ecosystems, which in turn consist of smaller components. The world itself can be described as an ecosystem.
***SYSTEMS AND INTERACTIONS**	• All of the living and nonliving things in an environment are interconnected. • The populations in a community interact in many different ways.
***UNITY AND DIVERSITY**	• Although the Earth's ecosystems vary greatly, they all contain the same basic kinds of interactions.
STABILITY	• Ecosystems adjust in response to changes. • The interactions within an ecosystem are in a state of dynamic balance.

CHAPTER 2

Cycles in Nature

***ENERGY**	• Unlike energy, matter in an ecosystem can be recycled.
***EVOLUTION**	• The types of organisms found in a particular place may change over time because of succession.
***PATTERNS OF CHANGE**	• Ecosystems may undergo daily, lunar, and annual cycles of change. • Chemicals undergo a series of transformations as they cycle between the living and nonliving parts of ecosystems. • Over time, the community in a particular place may be gradually replaced by another community.
SCALE AND STRUCTURE	• Cycles of matter are an important part of ecosystems. • Biological clocks keep track of cycles of time that range in length from a few minutes to many years.
***SYSTEMS AND INTERACTIONS**	• Biological clocks work with environmental factors to produce rhythmic changes the appearance and behavior of organisms. • The moon and sun control the rise and fall of the tides. • Some events may change the rate of succession or reset cycles of successio
***UNITY AND DIVERSITY**	• Different kinds of organisms experience daily, lunar, and annual rhythms. • Organisms have different ways of escaping unfavorable environmental condi • The many different cycles involve the flow of matter from the nonliving part o environment to living things and back again.
STABILITY	• Because of biological clocks, organisms continue to undergo rhythmic chan even in the absence of environmental cues. • Matter is recycled in ecosystems.

CHAPTER 3

Exploring Earth's Biomes

***ENERGY**	• Tube worms and other organisms living around deep-sea vents rely on heat energy from the Earth's interior rather than on energy from the sun.
***EVOLUTION**	• Animals and plants that live in a desert biome have adaptations that allow them to survive on little water.
***PATTERNS OF CHANGE**	• Plants and animals disperse, or spread out into new areas, often with help from wind, water, animals, and humans.
SCALE AND STRUCTURE	• The marine, or ocean, biome is the largest biome on Earth.
***SYSTEMS AND INTERACTIONS**	• Most animals in the ocean depend either directly or indirectly on phytoplankton for food.
***UNITY AND DIVERSITY**	• Tropical rain forest biomes have a greater diversity of plants and animals than any other biome.
STABILITY	• Land biomes are areas with similar climates, plants, and animals.

CHAPTER 4

Wildlife Conservation

*ENERGY	
*EVOLUTION	• Extinction is a natural part of Earth's history • Human activities can change environments faster than organisms can adapt to these changes
*PATTERNS OF CHANGE	• Human activities can cause organisms to become endangered or extinct • Human activities have greatly increased the rate of extinction • As their habitats are destroyed, certain species become rarer
SCALE AND STRUCTURE	• Habitat destruction may affect the environment on local, regional, and global levels
*SYSTEMS AND INTERACTIONS	• Exotic species interfere with the interactions of native communities • Wildlife is necessary for the continued survival of the human species
*UNITY AND DIVERSITY	• Humans harm wildlife and wildlife habitats through many activities that are motivated by many different things • There are various methods for conserving wildlife
STABILITY	• Wildlife conservation helps to preserve genetic diversity • Conservation preserves resources for future use