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NMH SUMMER SESSION

**2010**  
**Middle School Program**  
**FIELD BIOLOGY**

**TEXT:** *Science Explorer: Environmental Science*, Prentice Hall 2007

The students developed the ability to ask questions that were tested and developed thinking and problem-solving skills to answer those questions. Textbook reading assignments, field trips, outdoor observations, group and individual laboratory investigations, and class discussions guided them in their learning process. Out-of-class work included reading assignments with accompanying questions, written lab reports, individual and group project work, and short research projects. During class, the students wrote notes from lectures and discussions. They worked in the field (forest, field, and pond), made observations, performed identifications, and formulated hypothesis and conclusions based on experiments. They also worked in groups to learn concepts, took written tests, did group projects, performed presentations, and participated in daily class discussions.

**TOPICS COVERED:**

CHAPTER ONE – POPULATIONS AND COMMUNITIES

Section One – Living Things and the Environment

Completed Objectives

- 1) Identified the needs that must be met by an organism's surroundings
- 2) Identified biotic and abiotic parts of a habitat
- 3) Described the levels of organization within an ecosystem

Section Two – Studying Populations

Completed Objectives

- 1) Described methods for determining the size of a population
- 2) Explained the causes of changes in population size
- 3) Identified factors that limit population growth

Section Three – Interactions Among Living Things

Completed Objectives

- 1) Explained how an organism's adaptations help it survive
- 2) Described the major kinds of interaction among organisms in an ecosystem
- 3) Identified the three types of symbiotic relationships

Section Four – Changes in Communities

Completed Objective

- 1) Described the differences between primary and secondary succession

CHAPTER TWO – ECOSYSTEMS AND BIOMES

Section One – Energy Flow in Ecosystems

Completed Objectives

- 1) Named and described energy roles that organisms play in an ecosystem
- 2) Explained how energy moves through an ecosystem
- 3) Described how much energy is available at each level of an energy pyramid

Section Two – Cycles of Matter

Completed Objectives

- 1) Named and described processes involved in the water cycle
- 2) Explained how carbon and oxygen are recycled in an organism
- 3) Defined and described the nitrogen cycle

### Section Three – Biogeography

#### Completed Objectives

- 1) Explained how the movement of the continents has affected the distribution of species
- 2) Named and described three ways that dispersal of organisms occurs
- 3) Named and described factors that can limit the dispersal of a species

### Section Four – Biomes

#### Completed Objectives

- 1) Named the six major biomes found on Earth
- 2) Named and described the factors that determine the type of biome found in an area

### Section Five – Aquatic Ecosystems

#### Completed Objectives

- 1) Named and described the two major types of aquatic ecosystems
- 2) Described how organisms are adapted to each of the aquatic habitats

## CHAPTER THREE – LIVING RESOURCES

### Section One – Environmental Issues

#### Completed Objectives

- 1) Identified the general categories of environmental issues
- 2) Described how decision makers balance different needs and concerns

### Section Three – Biodiversity

#### Completed Objectives

- 1) Explained the value of biodiversity
- 2) Identified the factors that affect biodiversity
- 3) Named some human activities that threaten biodiversity
- 4) Listed some ways to protect biodiversity

### Section Four – The Search for New Medicines

#### Completed Objectives

- 1) Identified one reason why medical researchers want to protect biodiversity
- 2) Explained why many rain forest plants are sources of medicines

## CHAPTER FOUR – LAND, WATER, AND AIR RESOURCES

### Section One – Conserving Land and Soil

#### Completed Objectives

- 1) Identified how people use land
- 2) Described structure of fertile soil
- 3) Identified problems that occur when soil is not properly managed

### Section Two – Waste Disposal and Recycling

#### Completed Objectives

- 1) Learned methods for waste disposal
- 2) Identified ways to control waste problems

### Section Five – Global Changes in the Atmosphere

#### Completed Objectives

- 1) Learned how human activities have damaged the ozone layer
- 2) Learned how human activities can be linked to global climate changes

The course met for 75 minutes, six days a week, for the five-week session.

Master Teacher: Mickey Belcher  
McClelland School

Teaching Intern: Sarah Gillig  
Wesleyan University