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Textbook: Arms, Karen (2000), *Environmental Science*, New York, Holt, Rinehart, and Winston.  
Codes in this outline are the state standards for New Jersey.

### Unit I: Ecological Systems

#### Introduction

Environmental Problems 5.10.A.1

Environmental Decision-making 5.10.B.2

#### 2. Ecosystems

Niche and habitat 5.5.A.2&3, 5.5.B.2

Energy flow within an ecosystem 5.5.A.2&3, 5.5.B.2

Food chains/webs 5.5.A.2&3, 5.5.B.2

#### Interaction among species

Mutualism 5.5.A.3, 5.5.B.2

Commensalism 5.5.A.3, 5.5.B.2

Parasitism 5.5.A.3, 5.5.B.2

Predator/prey 5.5.A.3, 5.5.B.2

#### Adaptations

Types of Ecosystems 5.5.A.3, 5.5.B.2

Biomes 5.5.A.3, 5.5.B.2

Organisms adapted to each environment 5.5.A.3, 5.5.B.2

#### Succession

Primary and Secondary 5.5.A.3, 5.5.B.2

Climax community 5.5.A.3, 5.5.B.2

#### Cycling of Materials

Water 5.7.B.2, 5.8.A.1, 5.8.B.1, 5.8.C.2&3

Carbon 5.7.B.2, 5.8.A.1, 5.8.B.1, 5.8.C.2&3

Nitrogen 5.7.B.2, 5.8.A.1, 5.8.B.1, 5.8.C.2&3

### Unit II: Water and Land Resources

#### Water Resources

Surface water 5.8.A.1

Reservoirs 5.8.A.1, 5.8.D.1

Ground water 5.8.A.1, 5.8.D.1

#### Freshwater Pollution

Lake evaluation 5.10.A.1, 5.10.B.1&2

Eutrophication 5.10.A.1, 5.10.B.1&2

Oxygen content, temperature, organisms, pH 5.10.A.1, 5.10.B.1&2

Point/ Nonpoint Sources of Pollution 5.10.A.1, 5.10.B.1&2

#### Ocean Pollution

Dumping 5.10.A.1, 5.10.B.1&2

Case Study – NJ beaches 5.10.A.1, 5.10.B.1&2

Medical waste 5.10.A.1, 5.10.B.1&2

Garbage from NY 5.10.A.1, 5.10.B.1&2

#### Land Resources

Agriculture 5.10.A.1, 5.10.B.1&2

Runoff 5.10.A.1, 5.10.B.1&2

Leaching 5.10.A.1, 5.10.B.1&2

Pesticides 5.10.A.1, 5.10.B.1&2

Fertilizers 5.10.A.1, 5.10.B.1&2

Fungicides 5.10.A.1, 5.10.B.1&2

Erosion 5.10.A.1, 5.10.B.1&2

### Unit III: Maintaining A Healthy Atmosphere

#### Acid Precipitation

Causes/Effects 5.10.A.1, 5.10.B.1&2

#### Air Pollution

Causes 5.10.A.1, 5.10.B.1&2

Effects on Human Health 5.10.A.1, 5.10.B.1&2

Indoor – radon, asbestos, carbon monoxide 5.10.A.1, 5.10.B.1&2

i. Kit: testing air pollution 5.10.A.1,

5.10.B.1&2, 9.1, 5.1.C.1

#### Elements of the Atmosphere

Composition 5.10.A.1, 5.10.B.1&2

Behavior of Gases 5.7.A.2,

Kinetic Theory of Motion 5.7.A.2

#### Atmosphere Dynamics

Climate 5.10.A.1, 5.10.B.1&2

Seasons 5.8.B.1

Solar Radiation 5.9.A.1

Greenhouse Effect 5.10.A.1, 5.10.B.1&2

i. Experiment: Global Warming in a

Jar 5.10.A.1, 5.10.B.1&2

Ozone Layer 5.10.A.1, 5.10.B.1&2

Ozone hole 5.10.A.1, 5.10.B.1&2

Causes – fossil fuels, CFCs 5.10.A.1, 5.10.B.1&2

### Unit IV: Consumption of Resources

Fossil Fuels 5.10.A.1, 5.10.B.1&2

Renewable vs. Nonrenewable 5.10.A.1, 5.10.B.1&2

Economic Concerns 5.1.A.1

Nuclear Energy 5.10.A.1, 5.10.B.1&2  
Case Study – pro/con 5.10.A.1, 5.10.B.1&2  
Yucca Mountain 5.10.A.1, 5.10.B.1&2

Alternative Energy Sources 5.10.A.1, 5.10.B.1&2  
Biomass 5.10.A.1, 5.10.B.1&2  
Solar Energy 5.10.A.1, 5.10.B.1&2  
Hydro energy 5.10.A.1, 5.10.B.1&2  
Wind Energy 5.10.A.1, 5.10.B.1&2

5.10.A.1, 5.10.B.1&2

i. Activity:Solar Energy Comparison

Solid Waste Options 5.10.A.1, 5.10.B.1&2  
Recycling 5.10.A.1, 5.10.B.1&2  
Activity: Investigating Mahwah’s Recycling Program 5.10.A.1, 5.10.B.1&2, 9.1  
Decrease in Production 5.10.A.1, 5.10.B.1&2

\*Hazardous Waste 5.10.A.1, 5.10.B.1&2  
Production 5.10.A.1, 5.10.B.1&2  
Storage 5.10.A.1, 5.10.B.1&2

## Unit Five: Human Effects on Biodiversity and Environmental Policy

Population Growth 5.10.A.1, 5.10.B.1&2  
Limiting Factors 5.10.A.1, 5.10.B.1&2  
Problems 5.10.A.1, 5.10.B.1&2  
Carrying Capacity 5.10.A.1, 5.10.B.1&2  
Overpopulation 5.10.A.1, 5.10.B.1&2

Biodiversity 5.10.A.1, 5.10.B.1&2  
Human effects on 5.10.A.1, 5.10.B.1&2  
Value of 5.10.A.1, 5.10.B.1&2  
Intrinsic 5.10.A.1, 5.10.B.1&2  
Financial 5.10.A.1, 5.10.B.1&2

i. Video5.10.A.1, 5.10.B.1&2

Public Policy 5.1.A.1, 5.10.A.1, 5.10.B.1&2  
Endangered Species Act 5.1.A.1, 5.10.A.1, 5.10.B.1&2  
Environmental Policies 5.1.A.1, 5.10.A.1, 5.10.B.1&2

Environmental Laws 5.1.A.1, 5.10.A.1, 5.10.B.1&2, 8.1, 9.1

5.10.A.1, 5.10.B.1&2, 8.1, 9.1

i. Researchproject: Local  
ii. Presentationof Research 5.1.A.1,

Wildlife Management  
Hunting 5.1.A.1, 5.10.A.1, 5.10.B.1&2  
Relocating 5.1.A.1, 5.10.A.1, 5.10.B.1&2  
Stocking 5.1.A.1, 5.10.A.1, 5.10.B.1&2

