## Unit 1

Life, Matter, and Energy

#### An Overview of Life

Life and Its Designer Characteristics of Living Things Classification of Living Things

## Biochemistry Matter and Energy

Chemical Reactions Water Carbohydrates and Lipids Proteins and Nucleic Acids

## Energy and Matter Flow in an Ecosystem

The Web of Life
Energy Flow
Carbon Cycle
Nitrogen and Phosphorus Cycles

## Unit 6

Plants: Reproduction and Cultivation

#### **Plant Diversity**

Plant Life Cycle and Diversity Bryophytes Seedless Vascular Plants Gymnosperms Angiosperms

#### Plant Reproduction

Flowers Fruits and Seeds Asexual Reproduction

#### Plant-Human Interactions

The Green Revolution and Intensive Agriculture Sustainable Agriculture Ecological Principles in Agriculture Soil and Plant Nutrition

## Unit 2

**Ecology** 

#### **Biomes and Ecosystems**

Introduction to Biomes and Ecosystems Biomes

Change and Succession in Ecosystems

#### **Communities and Populations**

Community Interactions
Symbiosis
Species Diversity
Population Requirements, Density, and
Distribution

## Population Change

# Human Interactions With the Biosphere

The Importance of Biodiversity Threats to Biodiversity Stewardship of Biodiversity

### Unit 7

## Fungi, Microorganisms, and Viruses

#### Fungi

Characteristics of Fungi Fungus Reproduction and Classification Fungi in Their Environment Fungi and Humans

#### **Protists**

Fungus-Like Protists Algae Protozoa

#### **Bacteria and Viruses**

Bacteria: Characteristics and Classification Bacteria Diversity Viruses Bacterial and Viral Disease; Vaccines

## Unit 3

#### Cells and Cell Processes

#### Introduction to the Cell

Introduction to the Cell Structure of the Cell Organelles Cell Specialization

#### **Cellular Processes**

Cell Transport
Cell Signaling
Cellular Respiration

#### The Cell's Role in Genetics

DNA

Protein Synthesis Mitosis Meiosis

## Unit 8

#### Invertebrates

## Introduction to Animals; Invertebrates

Introduction to Animals Sponges Cnidarians

#### **More Invertebrates**

Flatworms and Roundworms Segmented Worms Echinoderms Mollusks

#### Arthropods

Introduction to Arthropods Crustaceans and Myriapods Arachnids Insects: Classification and Life Cycle Insects in Their Environment

## Unit 4

## Genetics

#### **Mendelian Genetics**

Mendel – Father of Modern Genetics Mendel's Principles Using Mendel's Principles More Complex Crosses and Independent Assortment

#### **Advanced Genetics**

What Mendel Did Not Know Changes in Genes and Chromosomes Factors That Influence Human Genetics

## **Limitations of Genetic Diversity**

Natural Selection Speciation The Development of Evolutionary Theory The Limit of Genetic Change The Unlikeliness of Evolutionary Theory

## Unit 5

#### Plants: Form and Function

#### Plants and Their Purpose

Plants and the Environment
Photosynthesis: Light-Dependent Phase
Photosynthesis: Light-Independent
Phase

#### **Plant Structure**

Introduction to Plant Structure Leaves Stems Roots

#### Plants and Their Environment

Plant Design for Fitness
Growth Responses to Abiotic Factors
Physiological Responses to Abiotic
Factors
Plant Defense
Beneficial Plant Interactions

### Unit 9

#### Vertebrates

## Introduction to Vertebrates; Fish

Chordate Classification and Characteristics Invertebrate and Vertebrate Chordates Fish: Characteristics and Classification Fish in Their Environment

## **Amphibians and Reptiles**

Amphibians: Characteristics and Classification
Amphibians in Their Environment
Reptiles: Characteristics and Classification
Reptiles in Their Environment

#### **Birds and Mammals**

Birds: Characteristics and Classification Birds in Their Environment Mammals: Characteristics and Classification Mammals in Their Environment

## Unit 10

## **Animal Processes and Behavior**

## Homeostasis and Exchange

Introduction to Homeostasis Digestion and Absorption Gas Exchange Excretion Circulation

#### **Control of Homeostasis**

Chemical Control of Homeostasis Neural Control of Homeostasis Defense and Immunity Muscles and Skeletons

#### **Animal Behavior**

Introduction to Animal Behavior Social Behavior Behavioral Adaptations to the Environment