

Planned Course Guide

Title of Planned Course: AP Biology

Subject Area: Science

Grade Level: 11, 12

Course Description: AP Biology is our advanced placement course focusing on the concepts of evolution, the use of free energy to maintain homeostasis, the storage and transmission of genetic information, and the interactions between biological systems. This course focuses on the analysis of biological concepts to create a deep understanding of the newly updated big ideas stated by the College Board in 2012. Students taking this course will culminate their rigorous studies by taking the AP Biology exam.

Time/Credit for this Course: 1.4 Credits / 1 Full Academic Year

Curriculum Writing Committee: Ashley White

Planned Course Materials

Course Title: AP Biology

Textbook: Biology: AP Edition, 7th Edition – Campbell & Reece, 2005

Supplemental Books:

- Biology: The Unity and Diversity of Life, 10th Edition – Starr & Taggart, 2004
- Practicing Biology: A Student Workbook, 5th Edition – Heitz & Giffen, 2014

Teacher Resources:

- Ancillary Materials including PowerPoints
- AP Biology Curriculum Framework, The College Board, 2012

Curriculum Map

- August:** Properties of Water
Carbon Chemistry – Organic Molecules
- September:** Enzymes
Eukaryotic Cells & the Endomembrane System
Structure and Function of the Membranes
- October:** Metabolism – Free Energy & ATP
Cellular Respiration
Photosynthesis
- November:** Cellular Communication
The Cell Cycle – Mitosis
Meiosis and Sexual Life Cycles
- December:** Mendel and Genes
Chromosomal Inheritance
Molecular Basis of Inheritance
Ecosystems
- January:** From Genes to Proteins
Viruses and Bacteria
Biotechnology
- February:** Mechanisms of Evolution
Evolution in Populations and Origin of Species
Population Ecology
- March:** Phylogeny and Systematics
The Tree of Life
Angiosperm Reproduction/Plant Responses
Animal Form and Function
- April:** Immune System
Endocrine System
Nervous System
- May:** AP Exam
Conservation Biology & Restoration Ecology
- June:** Student Projects – Current Events in Biology, Careers in Biology

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Water

Time frame: 2 Days

State Standards: 3.1.BA2, 3.1.BA8,

Anchor(s) or adopted anchor: BIO.A.2.1, BIO.A.2.2

Essential content/objectives: At end of the unit, students will be able to:

- Explain why the polar nature of water leads to hydrogen bonding.
- Explain the four emergent properties of water and how they contribute to life.
- Explain how the dissociation of water leads to environmental changes that affect organic molecules and organisms.

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- Water lab

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Carbon Chemistry - Organic Molecules

Time frame: 5 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA5, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B3, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.4.1, BIO.A.4.2

Essential content/objectives: At end of the unit, students will be able to:

- List properties as to why carbon is an essential atom in organic chemistry
- Draw the diverse molecules that carbon can create when bonded to other essential atoms – lipids, carbohydrates, proteins, and nucleic acids
- Explain the importance of functional groups as they pertain to a molecule's ability to mix with water or fold into a more complex shape
- Visualize how monomers can repeat themselves in patterns to form polymers
- Explain how the structure of a carbohydrate, lipid, protein, or nucleic acid serves to facilitate its function in a cell

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- Illustrate the molecular structure of the four organic molecules

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning
- Building/modeling molecules

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Enzymes

Time frame: 4 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA5, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B3, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.4.1, BIO.A.4.2

Essential content/objectives: At end of the unit, students will be able to:

- Explain how enzymes act as catalysts in metabolic reactions by lowering the energy barriers in a system
- Explain how enzymes are regulated and how denaturation occurs in a natural system
- Explain how enzymes help to regulate metabolism and thus help to maintain homeostasis in a system

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- AP Biology Lab – Enzyme Activity from College Board

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Eukaryotic Cells & the Endomembrane System

Time frame: 7 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B3, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain the importance of internal membranes to cell homeostasis and functioning
- Explain the importance of the nucleus and ribosomes
- Diagram and thoroughly explain the importance of the endomembrane system to the cell and an organism as a whole
- Explain how the mitochondria and/or chloroplasts play a role in changing free energy into chemical energy used by the cell

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- Student illustrations/diagrams

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Structure and Function of Membranes

Time frame: 6 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B3, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain what a fluid mosaic is
- Explain how membrane structure results in selective permeability
- Describe passive transport as diffusion across a membrane with no energy expenditure
- Describe active transport as movement of a substance across a membrane with the use of energy
- List examples of passive and active transport and support why they fall into each category
- Describe endocytosis and exocytosis

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- Student illustrations/diagrams
- AP Lab – Diffusion and Osmosis – College Board

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Metabolism – Free Energy & ATP

Time frame: 5 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain how an organism's metabolism transforms matter and energy within the laws of thermodynamics
- Defend why a reaction is spontaneous or not based on the free-energy change
- Describe the structure of ATP and how it contributes to its function
- Describe the importance of energy conversions in the mitochondrion and chloroplast

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter Worksheets
- Chapter notes
- Student Illustrations/Diagrams

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Cellular Respiration

Time frame: 7 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2

Essential content/objectives: At end of the unit, students will be able to:

- Explain what a catabolic reaction is
- Describe the events in glycolysis and list the products
- Describe the events of the citric acid cycle and list the products
- Explain chemiosmosis in relation to ATP production
- Compare and contrast fermentation to cellular respiration

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter Worksheets
- Chapter notes
- Student Illustrations/Diagrams
- AP Lab – Cellular Respiration – College Board

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Photosynthesis

Time frame: 5 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2

Essential content/objectives: At end of the unit, students will be able to:

- Explain how photosynthesis converts light energy to chemical energy
- Describe the events of the light reactions and list the products
- Describe the events of the dark reactions and list the products
- Explain chemiosmosis in relation to ATP production
- Explain how this is a cyclic cycle

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- Student illustrations/diagrams
- AP Lab – Photosynthesis – College Board

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Cellular Communication

Time frame: 5 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B4

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.2.4

Essential content/objectives: At end of the unit, students will be able to:

- Explain how external signals are converted into responses within the cell
- Describe the events of reception – a ligand bonds to a receptor
- Describe the events of transduction – cascades amplify the signal
- Describe the events of response – cytoplasmic activities are altered
- Explain the difference between external ligands and sex hormones in signaling

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter Worksheets
- Chapter Notes
- Student Illustrations/Diagrams

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: The Cell Cycle - Mitosis

Time frame: 5 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA4, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2

Essential content/objectives: At end of the unit, students will be able to:

- Explain how cell division results in genetically identical daughter cells
- Describe the events interphase
- Describe the events of the mitotic phase
- Explain the molecular control system that regulates the cell cycle

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- Student illustrations/diagrams

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Meiosis and Sexual Reproduction

Time frame: 6 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA4, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.B5, 3.1.B.C1, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain how offspring acquire genes from parents by inheriting chromosomes
- Explain how fertilization and meiosis alternate in sexual life cycles
- Describe the processes that halve the number of chromosomes (diploid to haploid)
- Explain how genetic variation produced by sexual reproduction leads to evolution

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- Student illustrations/diagrams
- AP Lab – Mitosis and Meiosis – College Board

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Mendel and Genes

Time frame: 4 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA4, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.B5, 3.1.B.C1, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain how Mendel used a scientific approach to identify his two laws
- Describe the Law of Independent Assortment and the Law of Segregation
- Describe how these laws govern Mendelian inheritance
- Explain the difference between dominant and recessive genes
- Explain the difference between genotypes and phenotypes and know all of the possible genotypes
- Execute Punnett squares in monohybrid and dihybrid varieties
- Execute both types of Punnett squares using complete, incomplete, and codominance
- Explain how not all inheritance patterns are as simple as Mendelian genetics

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Problem sets
- Chapter notes
- Student illustrations/diagrams

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: The Chromosomal Basis of Inheritance

Time frame: 6 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA4, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.B4, 3.1.B.B5, 3.1.B.B6, 3.1.B.C1, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain how Mendelian genetics has its basis in the behavior of chromosomes
- Explain what a linked gene is and why it occurs
- Execute sex-linked Punnett squares
- Explain the outcomes of different chromosome numbers on phenotype
- Explain how organisms may inherit the wrong number of chromosomes (chromosomal mutations and nondisjunction)
- Explain how some inheritance patterns are exceptions to the standard chromosome theory

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Problem Sets
- Chapter notes
- Student Illustrations/Diagrams

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: The Molecular Basis of Inheritance

Time frame: 3 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA4, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.B3, 3.1.B.B4, 3.1.B.B5, 3.1.B.B6, 3.1.B.C1, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain how the structure of DNA contributes to its function as genetic storage
- Explain DNA replication and list all enzymes necessary to the process
- Use examples of past experiments to describe the importance of the molecule of DNA in inheritance (Griffith, Hershey & Chase, Franklin, Watson & Crick)

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- Student illustrations/diagrams

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Ecology

Time frame: 5 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA4, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.B3, 3.1.B.B5, 3.1.B.C1, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.2.4, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain how ecosystems emphasize energy flow and chemical cycling
- Describe the biotic and abiotic factors that limit primary production in ecosystems
- Describe why energy transfer between trophic levels is usually less than 20% efficient
- Explain the geochemical and biological processes that move nutrients through natural systems
- Explain the effects that humans are having on natural populations

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- Analyzing scenarios

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: From Genes to Proteins

Time frame: 6 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA4, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.B3, 3.1.B.B4, 3.1.B.B5, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain how genes specify proteins via transcription and translation
- Describe the events of transcription as DNA directed RNA synthesis
- Explain how eukaryotic cells modify RNA after transcription
- Describe the events of translation as RNA directed synthesis of proteins
- Explain the effect of point mutations on protein structure and function

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- Student Illustrations/Diagrams

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Viruses and Bacteria

Time frame: 4 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA4, 3.1.BA5, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1, 3.1.B.B3, 3.1.B.B4, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain how a virus acts as a genome but can only reproduce inside a cell
- Describe the lytic and lysogenic cycles in viruses
- Explain how rapid reproduction, mutation, and genetic recombination contribute to the diversity of bacteria
- Explain how individual bacteria respond to environmental change by regulating their gene expression
- Describe the structural, functional, and genetic adaptations that contribute to prokaryotic success

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- Student illustrations/diagrams

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Biotechnology

Time frame: 4 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA5, 3.1.BA7, 3.1.BA9, 3.1.B.B1, 3.1.B.B3, 3.1.B.B4

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.2.4, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4

Essential content/objectives: At end of the unit, students will be able to:

- Explain how DNA cloning permits production of multiple copies of a specific gene or other DNA segment
- Describe how restriction fragment analysis detects DNA differences that affect restriction sites
- Explain how entire genomes can be mapped at the DNA level
- Explain the processes of PCR, Gel electrophoresis, and DNA sequencing
- Explain how different cell types result from differential gene expression in cells with the same DNA (totipotency, cloning, pluripotency, stem cells)

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter Notes
- Student Illustrations/Diagrams
- AP Lab – Restriction Enzyme Analysis – College Board

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Mechanisms of Evolution

Time frame: 3 Days

State Standards: 3.1.BA1, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.B4, 3.1.B.B5, 3.1.B.C1, 3.1.B.C2, 3.1.B.C3

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.2.4, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain the concept of “descent with modification” in terms of Darwinian evolution
- Explain the concept of natural selection as it contributes to evolution
- Support why Darwin’s theories explain a wide range of observations
- Compare and contrast between artificial and natural selection

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Evolution of Populations and Origin of Species

Time frame: 8 Days

State Standards: 3.1.BA1, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.B4, 3.1.B.B5, 3.1.B.C1, 3.1.B.C2, 3.1.B.C3

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.2.4, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Analyze Hardy-Weinberg problems and explain the importance of each part of the formula as it relates to populations
- Explain how mutations and sexual recombination produce variation that makes evolution possible
- Explain the concepts of natural selection, genetic drift, and gene flow when analyzing a population's genetic composition
- Explain how natural selection plays a role in adaptive evolution
- Explain how speciation fits in with reproductive isolation
- Compare and contrast the two types of speciation (allopatric and sympatric)
- Explain and list types of post-and pre-zygotic barriers in organisms

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- Hardy-Weinberg problem sets and analysis
- AP Lab – Hardy-Weinberg Modeling – College Board

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Phylogeny and Systematics

Time frame: 4 Days

State Standards: 3.1.BA1, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.B4, 3.1.B.B5, 3.1.B.C1, 3.1.B.C2, 3.1.B.C3

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.2.4, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain how phylogenies are based on common ancestries inferred from fossil, morphological and molecular evidence
- Analyze a phylogenetic tree and decipher which species are closely related
- Diagram species with related characteristics, showing knowledge of cladistics

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- Cladogram analyses and construction
- AP Lab – Comparing DNA Sequences with BLAST – College Board
- PBS Nova – What Darwin Didn't Know

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: The Tree of Life

Time frame: 6 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA5, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.B4, 3.1.B.B5, 3.1.B.C1, 3.1.B.C2, 3.1.B.C3

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.2.4, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain how early Earth conditions would have been possible for the creation of life
- Describe the role of fossils in evolution
- Explain how prokaryotes changed young Earth
- Explain how eukaryotic cells rose from symbiosis and genetic exchanges between prokaryotes
- Explain how multicellular organisms evolved from single celled eukaryotes

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Angiosperm Reproduction & Plant Responses

Time frame: 6 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.C1, 3.1.B.C2,

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.2.4, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain the process of pollination as a form of sexual reproduction
- Explain the process of creating fruit and seeds in angiosperms
- Review and explain how signal transduction pathways work in plant cells as well as animal cells
- Explain and list some plant hormones and their major roles in plant development
- Explain the various ways that plants respond to light
- Describe the ways that plants protect themselves from herbivores and pathogens

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- AP Lab – Transpiration – College Board
- PBS Nature: What Plants Talk About

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Animal Form and Function

Time frame: 4 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.C1, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.2.4, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain the physical laws and environmental conditions that shape animal size
- Explain how animals convert energy into useable forms to sustain form and function
- Explain the concept of thermoregulation in animals as it contributes to homeostasis, anatomy, physiology, and behavior

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: The Immune System

Time frame: 4 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.C1, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.2.4, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Describe the defenses associated with innate immunity for broad defense
- Describe the defenses associated with acquired immunity for specific defense
- Describe the differences between humoral immunity and cell-mediated immunity against different threats
- Describe how cell communication plays a role in determining self from non-self
- Explain how the body can respond to auto-immune disorders

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Hormones and the Endocrine System

Time frame: 3 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.C1, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.2.4, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Describe how the nervous system and endocrine system work independently and together in a multicellular organism
- Describe the connection between the endocrine system and cellular communication

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: The Nervous System

Time frame: 5 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.C1, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.2.4, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Explain the roles of neurons and other supporting cells in the nervous system
- Describe the role of passive and active transport within the resting and action potentials of the neuron
- Explain and list the steps involved with a neuron going through action potential
- Describe how neurons interact with each other at their synapses
- Describe how the vertebrate nervous system is regionally specialized

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning

Curriculum Scope and Sequence

Planned Course: AP Biology

Unit: Conservation Biology and Restoration Ecology

Time frame: 5 Days

State Standards: 3.1.BA1, 3.1.BA2, 3.1.BA3, 3.1.BA5, 3.1.BA6, 3.1.BA7, 3.1.BA8, 3.1.BA9, 3.1.B.B1, 3.1.B.B2, 3.1.B.C1, 3.1.B.C2

Anchor(s) or adopted anchor: BIO.A.1.1, BIO.A.1.2, BIO.A.2.1, BIO.A.2.2, BIO.A.2.3, BIO.A.2.4, BIO.A.3.1, BIO.A.3.2, BIO.A.4.1, BIO.A.4.2, BIO.B.1.1, BIO.B.1.2, BIO.B.2.1, BIO.B.2.2, BIO.B.2.3, BIO.B.2.4, BIO.B.3.1, BIO.B.3.2, BIO.B.3.3

Essential content/objectives: At end of the unit, students will be able to:

- Describe how human activities are threatening Earth's biodiversity
- Describe how regional and landscape conservation can sustain biomes
- List the possible steps that restoration ecology takes to restore degraded ecosystems to a natural state
- Explain how sustainable development seeks to improve the human condition while conserving biodiversity

Core Activities: Students will complete/participate in the following:

- Outline chapter
- Chapter worksheets
- Chapter notes
- Case studies from textbook to analyze

Extensions:

- Study Island
- Additional worksheets

Remediation:

- Study Island
- Review quizzes
- Review worksheets
- Peer tutoring

Instructional Methods:

- Direct instruction using notes and key terms
- Cooperative learning during labs
- Group discussion
- Teacher modeling and visual aids
- Independent student work

Materials & Resources:

- Textbook
- Worksheets
- PowerPoints
- Overheads
- Lab material

Assessments:

- Quizzes
- Tests
- Homework
- Student participation
- Lab
- Questioning