

**Wilson Area School District  
Planned Course Guide**

**Title of Planned Course:** Academic Biology

**Subject Area:** Science

**Grade Level:** 9

**Course Description:** This course includes the fundamentals of biology such as the characteristics of life, ecology, human impact, nature of cells, photosynthesis and cellular respiration, basic genetics, evolution, plants, and animals. Students will make connections between varying aspects of life, relationships between organisms, and our role in the biological world.

**Time/Credit for this Course:** One Full Academic Year / 1.0 Credit

**Curriculum Writing Committee:** Wendy Baltz, Jennifer Burd, Ashley White

## Planned Course Materials

**Course Title:** Academic Biology

**Textbook:** Biology, Prentice Hall  
Pearson Education, Inc.,  
2010  
<http://www.prenticehall.com/>

**Teacher Resources:**

- Ancillary Materials
- Study Island

## Curriculum Map

### Weeks 1 & 2:

The Science of Biology

- What is Science?
- Scientific Method
- Characteristics of Life
- Tools and Procedures

### Weeks 3 & 4

Chemistry of Life

- Properties of Water
- Carbon Compounds

### Weeks 5 & 6

Chemistry of Life

- Carbon Compounds
- Chemical Reactions - Enzymes

### Weeks 7 & 8

Chemistry of Life

- Carbon Compounds
- Chemical Reactions - Enzymes
- Transition to Cells

### Weeks 9 & 10

Cells

- Cell Theory and History
- Cell Structure and Functions
- Cell Transport

### Weeks 11 & 12

Cells

- Cell Structure and Functions
- Cell Transport

### Weeks 13 & 14

Photosynthesis

- ATP
- Overview of Photosynthesis
- Reactions of Photosynthesis

Cellular Respiration

- Chemical Pathways
- Krebs Cycle and Electron Transport

### Weeks 15 & 16

Cell Growth and Division

- Cell Growth
- Cell Division (Mitosis)
- Regulating Cell Cycle
- Meiosis

**Weeks 17 & 18**

DNA and RNA

- History and Structure of DNA
- Replication
- Transcription and Translation

**Weeks 19 & 20**

DNA and RNA

- Mutations
- Gene Regulation
- Biotechnology

**Weeks 21 & 22**

Genetics

- Introduction to Genetics
- Punnett Squares

**Weeks 23 & 24**

Genetics

- Mendelian Genetics
- Linkage and Gene Maps

**Weeks 25 & 26**

Genetics

- Human Heredity
- Pedigrees

**Weeks 27 & 28**

Evolution

- Puzzle of the diversity of Life
- Darwin's Theory of Evolution
- Genes and Variation
- Evolution and Genetic Change
- Speciation
- Patterns of Evolution

**Weeks 29 & 30**

Ecology

- What is Ecology?
- Energy Flow
- Cycles of Matter
- What Shapes an Ecosystem?  
Biotic and Abiotic Factors, Relationships, Succession
- Land Biomes

**Weeks 31 & 32**

Populations

- How Populations Grow
- Limits to Growth

Humans in the Biosphere

- A Changing Landscape
- Renewable and Nonrenewable Resources
- Biodiversity

**Weeks 33 & 34**

- Content Review
- Keystone Exam

**Weeks 35 and 36** (Time Permitting depending on date of Keystone Exam)

Classification

- Historical Classification
- Modern Evolutionary Classification
- Kingdoms and Domains

Plant Kingdom

- Classification and Diversity
- Plant Structures and Functions
- Plant Reproduction

Microorganisms

- Introduction to Bacteria
- Introduction to Viruses

## Curriculum Scope & Sequence

**Planned Course:** Academic Biology

**Unit:** The Science of Biology

**Time frame:** 5 Days

**State Standards:** 3.1.10A, 3.1.10.E, 3.2.10.A, 3.2.10.B, 3.2.10.D, 3.7.10B, 3.8.10B, 4.3.10.B

**Anchor(s) or adopted anchor:** S11.A.1.1.1-5, S11.A.1.2.1-2, S11.A.2.1.1-5, S11.A.2.2.1-2

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

- Explain what the goal of science is and what a hypothesis is.
- Describe and apply the steps of the scientific method.
- Describe how scientists test hypotheses.
- Explain how a scientific theory develops.
- Explain the characteristics of living things.
- Explain how life can be studied at multiple levels.
- Use and apply the metric system.
- Appropriately use a compound light microscope.
- Describe common laboratory techniques
- Learn and apply safety techniques in the laboratory.

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

- Chapter Worksheets
- What is Life? Lab
- Microscope Lab
- Graphing Activities
- Measurement Worksheets

**Extensions:**

- Study Island
- Additional Graphing or Data Interpretation Activities
- Detailed Microscopic Studies

**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
- PowerPoints
- Overheads
- Lab Materials

**Assessments:**

- Quizzes
- Tests
- Homework
- Student Participation
- Labs
- Questioning

## Curriculum Scope & Sequence

**Planned Course:** Academic Biology

**Unit:** Properties of Water and Organic Molecules

**Time frame:** 12 Days

**State Standards:** 3.1.10C, 3.1.10E, 4.8.10A, 3.1.10A, 4.3.10.C, 3.1.10C, 3.2.10.B, 4.6.10A, 4.7.10B

**Anchor(s) or adopted anchor:** S11.A.1.3.2-3, S11.A.3.1.2, S11.A.3.3.1, S11.B.1.1.1-2

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

- List and explain the properties of water
- Explain why water molecules are polar
- Differentiate between solutions and suspensions
- Explain the difference between acidic and basic solutions
- Describe the structure and function of each group of organic compounds
- Explain how chemical reactions affect chemical bonds in compounds
- Describe how energy changes affect how easily a chemical reaction will occur
- Explain why enzymes are important to living things

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

- Chapter Worksheets
- Properties of Water Lab
- Acid and Base Lab
- Energy Activity
- Review Game

**Extensions:**

- Study Island
- Build Molecular Models using model kits

**Remediation:**

- Study Island
- Review Quizzes
- Review Worksheets
- Peer Tutoring
- Chapter Review Packet

**Instructional Methods:**

- Direct instruction using notes and key terms
- Cooperative Learning during labs
- Group Discussion
- Teacher modeling and visual aids
- Independent Student Work
- Demonstrations



**Materials & Resources:**

- Textbook
- PowerPoints
- Overheads
- Lab Materials
- Model Kits

**Assessments:**

- Quizzes
- Tests
- Homework
- Student Participation
- Labs
- Questioning

## Curriculum Scope & Sequence

**Planned Course:** Academic Biology

**Unit:** Ecology

**Time frame:** 8 Days

**State Standards:** 3.2.10A, 4.3.10B, 3.1.10A, 3.1.10C, 3.1.10E, 4.8.10A, 3.1.10B, 4.3.10B, 3.2.10B, 4.3.10C, 4.6.10A, 4.2.10D, 4.3.10B, 4.2.10C, 4.2.10D, 4.4.10C, 3.8.10C, 4.1.10B

**Anchor(s) or adopted anchor:** S11.A.1.2.1-2, S11.A.1.3.1-4, S11.A.3.1.1-4, S11.A.3.2.1-2, S11.A.3.3.1-3, S11.B.3.1.1-5, S11.B.3.2.1-3, S11.B.3.3.1-2

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

- Identify the levels of organization that ecologists study
- Trace the flow of energy through living systems
- Evaluate the efficiency of energy transfer among organisms in an ecosystem
- Describe how matter cycles through the living and nonliving parts of an ecosystem
- Describe how the availability of nutrients affects the productivity of an ecosystem
- Explain how biotic and abiotic factors influence an ecosystem
- Identify interactions that occur within communities
- Explain the process of succession
- Identify the characteristics of major land biomes
- List the characteristics used to describe a population
- Identify the factors that affect population size
- Identify factors that limit population growth

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

- Chapter Worksheets
- Practice Food Webs
- Activity to identify relationships between organisms
- Complete a biome chart
- Predator/Prey Graphing activity

**Extensions:**

- Study Island
- Food Web Project
- Biome Project

**Remediation:**

- Study Island
- Review Quizzes
- Review Worksheets
- Peer Tutoring
- Chapter Review Packet

**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
- PowerPoints
- Overheads
- Strange Days on Planet Earth – Predators video

**Assessments:**

- Quizzes
- Tests
- Homework
- Student Participation
- Labs
- Questioning, projects

## Curriculum Scope & Sequence

**Planned Course:** Academic Biology

**Unit:** Humans in the Biosphere

**Time frame:** 2 Days

**State Standards:** 3.2.10.A, 4.3.10.B, 3.1.10.C, 3.1.10.E, 4.8.10.A, 4.2.10.C, 4.4.10C, 3.8.10C

**Anchor(s) or adopted anchor:** S11.A.1.2.1-2, S11.A.1.3.1-2, S11.A.1.3.4, S11.B.3.3.1-3

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

- Describe human activities that can affect the biosphere
- Explain how environmental resources are classified
- Identify the characteristics of sustainable use
- Describe how human activities affect land, air and water resources
- Define biodiversity and explain its value

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

- Outline chapter
- Chapter Worksheets
- Make a timeline of how humans have altered the biosphere.
- Jigsaw activity regarding examples of renewable and nonrenewable resources.
- Discuss Easter Island
- Video clip of “How Stuff is Made”

**Extensions:**

- Study Island
- Complete a chart listing the pros and cons of different types of energy
- Research a Threatened or Endangered Pennsylvania Species

**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
- PowerPoints
- Overheads
- Endangered Species Video

**Assessments:**

- Quizzes
- TestsHomework
- Student Participation
- Labs
- Questioning
- Projects

## Curriculum Scope & Sequence

**Planned Course:** Academic Biology

**Unit:** The Cell

**Time frame:** 12 Days

**State Standards:** 3.1.10A, 3.2.10A, 3.1.10C, 3.1.10.E, 4.8.10A, 4.3.10C, 3.1.10B, 3.2.10B, 4.1.10B, 4.6.10A, 3.3.10A, 3.3.10B, 4.6.10A, 4.7.10B

**Anchor(s) or adopted anchor:** S11.A.1.1-2, S11.A.1.1.4-5, S11.A.1.3.2-3, S11.A.3.1.2-4, S11.A.3.2.1-3, S11.B.1.1.1-3

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

- Explain the cell theory and the history of the discovery of cells
- Differentiate between eukaryotes and prokaryotes as well as plant and animal cells
- List and explain cell parts and functions
- Describe what happens during diffusion
- Differentiate between osmosis, facilitated diffusion and active transport
- Describe cell specialization
- Identify the organization levels in multicellular organisms

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

- Chapter Worksheets
- Cell Drawings
- Cell Analogy Project
- Organelle Chart
- Cell Lab
- Diffusion Demonstration
- Elodea Osmosis Lab
- Egg Lab

**Extensions:**

- Study Island
- Create a Cell City
- Devise a Cell Crossword online

**Remediation:**

- Study Island
- Review Quizzes
- Review Worksheets
- Peer Tutoring
- Cell Model
- Cell Song
- Cell Organelle Children's book
- Create Cell Review Games

**Instructional Methods:**

- Direct instruction using notes and key terms
- Cooperative Learning during labs
- Group Discussion
- Teacher modeling and visual aids
- Independent Student Work
- Review Packet
- Review Game

**Materials & Resources:**

- Textbook
- PowerPoints
- Overheads
- Video – “Inside a Cell”
- Lab Materials

**Assessments:**

- Quizzes
- Tests
- Homework
- Student Participation
- Labs
- Questioning, projects

## Curriculum Scope & Sequence

**Planned Course:** Academic Biology

**Unit:** Photosynthesis and Cellular Respiration

**Time frame:** 5 Days

**State Standards:** 3.1.10A, 3.1.10E, 4.3.10.C, 3.3.10A, 3.3.10B, 4.6.10A, 4.7.10B

**Anchor(s) or adopted anchor:** S11.A.3.1.1-4, S11.B.1.1.1-3,

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

- Explain where plants get the energy they need to produce food
- Describe the role of ATP in cellular activities
- State the overall equation for photosynthesis
- Describe the role of light and chlorophyll in photosynthesis
- Describe the structure and function of a chloroplast
- Identify input/output of the light dependent reactions and Calvin Cycle
- Describe what conditions affect the rate of photosynthesis
- Explain what cellular respiration is and what happens during glycolysis
- Differentiate between alcoholic and lactic acid fermentation
- Identify input/output of the Krebs Cycle and the Electron Transport Chain
- Compare photosynthesis and cellular respiration

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

- Chapter Worksheets
- Concept Maps
- Pigment Chromatography Lab
- Rate of Photosynthesis Lab with yew sprig
- Fermentation Lab

**Extensions:**

- Study Island
- Peer Tutoring

**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
- PowerPoints
- Overheads
- Lab Materials

**Assessments:**

- Quizzes
- Tests
- Homework
- Student Participation
- Labs
- Questioning
- Projects

## Curriculum Scope & Sequence

**Planned Course:** Academic Biology

**Unit:** Cell Growth and Division

**Time frame:** 5 Days

**State Standards:** 3.2.10.A, 4.3.10B, 3.3.10A, 3.3.10B, 4.6.10.A, 4.7.10.B, 3.3.10.C

**Anchor(s) or adopted anchor:** S11.A.1.2.1, S11.B.1.1.1, S11.B.1.1.3, S11.B.2.2.1, S11.B.2.2.2

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

- Explain the problems growth causes for cells and how cell division helps prevent these problems
- Name and describe the main events of the cell cycle
- Describe what happens during the four stages of mitosis
- Describe how cancer cells are different from other cells
- Contrast the chromosome number of body cells and gametes
- Summarize the events of meiosis
- Contrast mitosis and meiosis

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

- Chapter Worksheets
- Egg in food coloring demo
- Mitosis Lab using onion root tips and whitefish blastula slides
- Pipe Cleaner Activities to simulate mitosis or meiosis
- Bead Activity to simulate crossing over
- Karyotype Lab
- Cancer Powerpoint / Project
- Review Packet
- Review Game

**Extensions:**

- Study Island
- Peer Tutoring
- Cancer PowerPoint

**Remediation:**

- Study Island
- Review Quizzes
- Review Worksheets
- Peer Tutoring
- Practice with pipe cleaners or beads

**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
- PowerPoints
- Overheads
- Lab Materials
- Cancer PowerPoint: <http://cancer.gov/cancertopics/understandingcancer>
- Pictures of cancerous cells

**Assessments:**

- Quizzes
- Tests
- Homework
- Student Participation
- Labs
- Questioning
- Projects

## Curriculum Scope & Sequence

**Planned Course:** Academic Biology

**Unit:** DNA and RNA

**Time frame:** 10 Days

**State Standards:** 3.7.10B, 3.8.10B, 3.3.10A, 3.3.10B, 4.6.10A, 4.7.10B, 3.3.10C, 3.3.10D, 3.4.10D, 4.7.10C, 3.3.10C, 4.2.10C, 4.4.10C, 3.8.10C

**Anchor(s) or adopted anchor:** S11.A.2.2.1-2, S11.B.1.1.1-3, S11.B.2.1.2-3, S11.B.2.2.1, S11.B.3.3.3

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

- Summarize the relationship between genes and DNA
- Describe the overall structure of a DNA molecule
- Relate the DNA molecule to chromosome structure
- Summarize the events of DNA replication
- Contrast and compare DNA and RNA
- Describe the three main types of RNA
- Describe transcription and the editing of RNA
- Summarize translation
- Explain the relationship between genes and proteins
- Contrast gene mutations and chromosomal mutations
- Explain the purpose of selective breeding
- Explain how scientists manipulate DNA
- Summarize what happens during transformation
- Describe the usefulness of some transgenic organisms to humans
- Summarize the main steps in cloning

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

- Chapter Worksheets
- DNA extraction Lab from Cheek Cells
- DNA Replication paper folding activity
- Transcription/Translation video segment
- Hands on simulation of translation
- Watch DNA, Cracking the Code DVD
- Review Packets
- DNA Jeopardy Review Game

**Extensions:**

- Study Island
- Peer Tutoring
- Show the movie GATTACA
- Read and summarize recent DNA articles

**Remediation:**

- Study Island
- Review Quizzes
- Review Worksheets
- Peer Tutoring
- Building a DNA model

**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, PowerPoints
- Overheads
- Lab Materials
- Human Genome Video (Beginning Segment)
- Cracking the Code DVD

**Assessments:**

- Quizzes
- Tests
- Homework
- Student Participation
- Labs
- Questioning
- Projects

## Curriculum Scope & Sequence

**Planned Course:** Academic Biology

**Unit:** Genetics

**Time frame:** 15 Days

**State Standards:** 3.3.10A, 3.3.10B, 4.6.10A, 4.7.10B, 3.3.10C, 3.3.10D, 3.4.10D, 4.7.10C

**Anchor(s) or adopted anchor:** S11.B.1.1.2-3, S11.B.2.2.1-3, S11.B.2.1.2-3

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

- Summarize Mendel's conclusion about inheritance
- Differentiate between genotypes and phenotypes
- Differentiate between dominant and recessive traits
- Explain Mendel's Law of Segregation and Law of Independent Assortment
- Explain the concept of alleles and chromosomal inheritance
- Complete monohybrid, dihybrid, codominant, incomplete dominant and sex – linked punnett squares
- Interpret a pedigree
- Give an example of a trait that has multiple alleles
- Describe examples of inheritance of human traits
- Explain how small changes in DNA can cause genetic disorders
- Be able to give examples of human genetic disorders and chromosomal disorders
- Describe sex linked disorders and why they are more common in males than females
- Explain the process of X chromosome inactivation
- Summarize nondisjunction and the problems it can cause

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

- Chapter Worksheets
- Punnett Square Problems
- Design a species lab
- Coin Toss Lab

**Extensions:**

- Study Island
- Peer Tutoring
- Brave New Babies Article
- Design a Species Project
- Create a Pedigree

**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
- Peer Instruction to complete punnett squares

**Materials & Resources:**

- Textbook
- PowerPoints
- Overheads
- Lab Materials

**Assessments:**

- Quizzes
- Tests
- Homework
- Student Participation
- Labs
- Questioning
- Projects

## Curriculum Scope & Sequence

**Planned Course:** Academic Biology

**Unit:** Evolution

**Time frame:** 5 Days

**State Standards:** 3.1.10.A, 3.2.10.A, 3.1.10.E, 3.3.10.C, 3.3.10.D, 3.4.10.D, 4.7.10.C

**Anchor(s) or adopted anchor:** S11.A.1.1.1-5, S11.B.2.1.1-4

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

- Describe the pattern Darwin observed among organisms of the Galapagos Islands
- State how Hutton and Lyell describe geological change
- Identify how Lamarck thought species evolved
- Describe Malthus's theory of population growth
- Describe how natural variation is used in artificial selection
- Explain how natural selection is related to a species' fitness
- Identify evidence Darwin used to present his case for evolution
- State Darwin's theory of evolution by natural selection

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

- Chapter Worksheets
- Jigsaw with current evolution articles
- Concept Map
- National Geographic Darwin Article
- Evolution Keyword Puzzle
- Evolution of the horse timeline
- Great Transformations Video
- Review Packet

**Extensions:**

- Study Island
- Peer Tutoring
- Peppered Moth Lab
- Mouse Predator - Prey Lab

**Remediation:**

- Study Island
- Review Quizzes
- Review Worksheets
- Peer Tutoring
- Teddy Graham Lab

**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
- PowerPoints
- Overheads
- Lab Materials
- Great Transformations Video

**Assessments:**

- Quizzes
- Tests
- Homework
- Student Participation
- Labs
- Questioning
- Projects

## Curriculum Scope & Sequence

**Planned Course:** Academic Biology

**Unit:** Classification

**Time frame:** 2.5 Days

**State Standards:** 3.1.10A, 3.1.10E, 4.3.10C, 3.1.10C, 3.2.10B, 3.3.10A, 3.3.10B, 4.6.10A, 4.7.10B

**Anchor(s) or adopted anchor:** S11.A.3.1.2, S11.A.3.3.2, S11.B.1.1.1-3

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

- Explain how living things are organized for study
- Describe binomial nomenclature
- Explain Linneaus's system of classification
- Explain how evolutionary relationships are important in classification
- Identify the principle behind cladistic analysis
- Explain how we can compare very dissimilar organisms
- Name the six kingdoms of life as they are now identified
- Describe the three domain system of classification

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

- Chapter Worksheets
- What Am I? Activity
- Dichotomous Key Lab

**Extensions:**

- Study Island, Peer Tutoring
- Woolly Mammoth Genome Article
- Practice using Dichotomous Keys

**Remediation:**

- Study Island
- Review Quizzes
- Review Worksheets
- Peer Tutoring
- Classification of Common Objects Activity
- Classifying Organisms Poster Activity

**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
- PowerPoints
- Overheads
- Lab Materials

**Assessments:**

- Quizzes
- Tests
- Homework
- Student Participation
- Labs
- Questioning
- Projects

## Curriculum Scope & Sequence

**Planned Course:** Academic Biology

**Unit:** Plant Kingdom

**Time frame:** 4 Days

**State Standards:** 3.1.10A, 3.1.10E, 4.3.10C, 3.1.10C, 3.2.10B, 3.3.10A, 3.3.10B, 4.6.10A, 4.7.10B

**Anchor(s) or adopted anchor:** S11.A.3.1.2, S11.A.3.3.2, S11.B.1.1.1-3

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

- Identify the characteristics of gymnosperms and angiosperms
- Differentiate between monocots and dicots
- Explain how water is transported throughout a plant
- Describe how the products of photosynthesis are transported throughout a plant
- Identify the reproductive structures of angiosperms
- Describe the function and structure of roots and stems
- Describe how the structure of a leaf enables it to carry out photosynthesis
- Describe how gas exchange takes place in a leaf

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

- Chapter Worksheets
- Flower Dissection
- Lab – Leaf Cross Section
- Fast Plant Lab (will need to start 35 - 40 days in advance)

**Extensions:**

- Study Island
- Peer Tutoring

**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
- PowerPoints
- Overheads
- Lab Materials

**Assessments:**

- Quizzes
- Tests
- Homework
- Student Participation
- Labs
- Questioning
- Projects

## Curriculum Scope & Sequence

**Planned Course:** Academic Biology

**Unit:** Bacteria and Viruses

**Time frame:** 2.5 Days

**State Standards:** 3.1.10A, 3.1.10E, 4.3.10C, 3.1.10C, 3.2.10B, 3.3.10A, 3.3.10B, 4.6.10A, 4.7.10B

**Anchor(s) or adopted anchor:** S11.A.3.1.2, S11.A.3.3.2, S11.B.1.1.1-3

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

- Describe the factors used to identify prokaryotes
- Describe the ecological roles that bacteria play in the environment
- Explain how bacteria cause disease
- Describe the structure of a virus
- Explain how viruses cause infection

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

- Outline Chapter
- Chapter Worksheets
- AIDS activity

**Extensions:**

- Study Island
- Peer Tutoring

**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
- PowerPoints
- Overheads
- Lab Materials

**Assessments:**

- Quizzes
- Tests
- Homework
- Student Participation
- Labs
- Questioning
- Projects