

Biology II Honors Syllabus: 33316

Lenoir City High School

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Prerequisites:

Biology I/CP Biology and Chemistry with an overall score of C or higher.

Textbook:

Campbell Reece Biology, 6th ed. Biology Concepts and Connections (\$98.97) [online book & resources](#) [correlations](#)

Overview:

Biology II Honors is a *laboratory science course* in which students engage in an in-depth study of the principles of biology. This course emphasizes comparative internal and external anatomical structure and functions of various plant and animal species, the environmental interaction of organisms, processes of living things, mechanisms that maintain homeostasis, biodiversity and change in populations over time. Students explore biological concepts through an inquiry approach as lab investigations and special projects heavily supplement this course. Biology II Honors is appropriate for traditional academic students with an interest in biology as well as technical students who are pursuing careers in zoology, veterinary or medical fields.

Goal/Objectives:

The goal of Biology II Honors is to develop an understanding of the structural and physiological unity and diversity of the spectra of life on Earth.

After completion of this course, the student will demonstrate basic knowledge in each of the following:

- Characteristics of the phyla in the kingdoms Bacteria, Archaea, Protista, Fungi, Plantae, and Animalia
- Comparative plant anatomy and physiology
- Comparative animal anatomy and physiology
- Ecological principles and applications

Biology II Honors includes the following conceptual strands:

- **Embedded Inquiry**
 - ✓ *Understandings about scientific inquiry and the ability to conduct inquiry are essential for living in the 21st century*
 - ✓ *What tools, skills, knowledge, and dispositions are needed to conduct scientific inquiry?*
- **Embedded Technology & Engineering**
 - ✓ *Society benefits when engineers apply scientific discoveries to design materials and processes that develop into enabling technologies.*
 - ✓ *How do science concepts, engineering skills, and applications of technology improve the quality of life?*
- **Embedded Mathematics**
 - ✓ *Science applies mathematics to investigate questions, solve problems, and communicate findings.*
 - ✓ *What mathematical skills and understandings are needed to successfully investigate biological topics?*
- **Cells**
 - ✓ *All living things are made of cells that perform functions necessary for life.*
 - ✓ *How are cells organized to carry on the processes of life?*
- **Interdependence**
 - ✓ *All life is interdependent and interacts with the environment.*
 - ✓ *How do living things interact with one another and with the non-living elements of their environment?*
- **Flow of Energy and Matter**
 - ✓ *Matter cycles and energy flows through the biosphere.*
 - ✓ *What are the scientific explanations for how matter cycles and energy flows through the biosphere?*
- **Heredity**
 - ✓ *Organisms reproduce and transmit hereditary information.*
 - ✓ *What are the principal mechanisms by which living things reproduce and transmit hereditary information from parents to offspring?*
- **Biodiversity and Change**
 - ✓ *A rich variety and complexity of organisms have developed in response to changes in the environment.*
 - ✓ *How does natural selection explain how organisms have changed over time?*
- **Comparative Anatomy**
 - ✓ *All living organisms are both alike and different.*
 - ✓ *In what ways are all living organisms similar and what makes a species unique?*
- **Botany**
 - ✓ *Plants are essential for life to exist.*
 - ✓ *What conditions are needed for plants to grow and reproduce?*

Class expectations:

Notes/notebook

Discussion

Research

Inquiry Labs

Field work

Dissections

Presentations

Group work

Tests & quizzes

Student Supply List:

- ✓ Lab fee: \$20
- ✓ 3-ring binder (2")
- ✓ College ruled notebook paper
- ✓ Calculator
- ✓ Metric ruler
- ✓ Zipper pouch for your 3 ring binder
- ✓ Sticky notes
- ✓ Highlighter
- ✓ Black or blue ink pen
- ✓ Pencils (mechanical okay)
- ✓ Colored pencils
- ✓ Lab note book

Check daily assignment page of www.mrskingsbioweb.com regularly.

Unit 1: Cells	Learning Objectives	Labs	Research/Writing	Time
<ul style="list-style-type: none"> • Safety • Prokaryotic vs. Eukaryotic Cells • Viruses • Organelles • Biochemical Molecules • Communication and Transport 	Math, inquiry, technology and engineering 3216.1.1-8	Rate of reactions, diffusion, Affects of inhibitors on enzymes, Reducing & non-reducing sugars, Fresh water fish tank	Enzymes used in industry	3 weeks
Unit 2: Biodiversity & Change, Interdependence, Flow of Matter & Energy				
<ul style="list-style-type: none"> • Photosynthesis & Respiration • Biological Succession • Biodiversity and Population Structure • Native and Non-Native Species • Human Conservation Concerns 	3216.2.1-4; 3216.3.1-8; 3216.5.1-6	Wetland conservation, Chromatography, Fermentation, Respiration	TN native and non-native species	3 weeks
Unit 3: Heredity				
<ul style="list-style-type: none"> • Meiosis and Genetic Variation • Mutations and Genetic Disorders • Recombinant DNA • Protein Synthesis 	3216.4.1-9; 3216.T/E.4	Fruit Fly, plant cloning, plasmids & restriction enzymes, electrophoresis	Genetically Modified products	4 weeks
Unit 4: Botany				
<ul style="list-style-type: none"> • Form and Function • Roots, Stems and Leaves • Vascular & Nonvascular Plants • Reproduction • Adaptations 	3216.7.1-8	Microscopes, Plant Dissection, FAST Plants, Plant Hormones, Transpiration	Harmful and beneficial plants to humans	4 weeks
Unit 5: Comparative Anatomy & Physiology				
<ul style="list-style-type: none"> • Sexual and Asexual Reproduction • Organ Systems • Immunity • Infectious Disease • Introduction to Animals <ul style="list-style-type: none"> Invertebrates <ol style="list-style-type: none"> 1. Worms and Mollusks 2. Arthropods 3. Echinoderms Vertebrates <ol style="list-style-type: none"> 1. Fishes and Amphibians 2. Reptiles and Birds 3. Mammals 4. Animal Behavior 	3216.6.1-8	Microscopes, dissection of major invertebrates and vertebrates, Pond water analysis	Infectious disease	4 weeks
Biology II Final Exam				

Revised 07/29/15

Block Schedule: 18 weeks