

# Wyoming Department of Education Required Virtual Education Course Syllabus

## Niobrara County School District # 1

Program Name	Wyoming Virtual Academy	Content Area	SC
Course ID	D-SCI-204BV2-K	Grade Level	9-12
Course Name	Summit Honors Biology - Semester 2	# of Credits	0.5
SCED Code	03051H0.5022	Curriculum Type	K12 Inc

### COURSE DESCRIPTION

*In this course, students focus on the chemistry of living things: the cell, genetics, evolution, the structure and function of living things, and ecology. The program consists of online lessons including extensive animations, an associated reference book, collaborative activities, virtual laboratories, and hands-on laboratory experiments students can conduct at home.*

### WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	<a href="#">BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets</a>
HS-LS1-1	Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.
HS-LS1-2	Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multi-cellular organisms.
HS-LS1-5	Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.
HS-LS1-6	Construct explanations and revise, as needed, based on evidence for: 1) how carbon, hydrogen, and oxygen may combine with other elements to form amino acids and/or other large carbon-based molecules, and 2) how other hydrocarbons may also combine to form large carbon-based molecules.
HS-LS1-7	Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of sugar molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.
HS-LS2-1	Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.
HS-LS2-2	Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.
HS-LS2-3	Construct an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions, and revise as needed.
HS-LS2-4	Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.

HS-LS2-5	Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.
HS-LS2-6	Evaluate the claims, evidence, and reasoning that the complex biotic and abiotic interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a modified ecosystem.
HS-LS2-7	Evaluate and assess impacts on the environment and biodiversity in order to refine or design a solution for detrimental impacts or enhancement for positive impacts.
HS-LS2-8	Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce.
HS-LS4-1	Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.
HS-LS4-2	Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.
HS-LS4-3	Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.
HS-LS4-4	Construct an explanation based on evidence for how natural selection leads to adaptation of populations.
HS-LS4-5	Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.
HS-LS4-6	Create and/or use a simulation to evaluate the impacts of human activity on biodiversity.
HS-PS1-7	Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.

HS-ESS2-4	Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate.
HS-ESS2-5	Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.
HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.
HS-ETS1-4	Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.
HS-ETS1-5	Evaluate the validity and reliability of claims in a variety of materials.

**SCOPE AND SEQUENCE**

UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Unit 1: Gene Expression Lesson 1: Semester 2 Introduction		Complete the Semester Introduction.  Complete the Semester Introduction student activity.
Unit 1: Gene Expression Lesson 2: Proteins Express DNA		Describe how genes control all aspects of cell life.  State that genes are the vehicle by which genetic information is passed to the next generation.  Explain how gene expression affects the development of cells.  Define gene expression, and discuss its importance in cell development and the life of an organism.  Describe how cell specialization in multicell organisms is the result of gene expression since all body cells contain the exact same genes in the nucleus.

Unit 1: Gene Expression Lesson 3: How Proteins Work		Explain how proteins are responsible for much of the actions and structures of living things.
Unit 1: Gene Expression Lesson 4: Gene Expression 1		<p>Explain that turning on and off the process of transcription can regulate gene expression.</p> <p>Define gene expression, and discuss its importance in cell development and the life of an organism.</p> <p>Describe how cell specialization in multicell organisms is often the result of gene expression rather than differences in the genes themselves.</p>
Unit 1: Gene Expression Lesson 5: Gene Expression 2		<p>Show how each point along the pathway of DNA to RNA to proteins is a potential point of control of gene expression, at which it can be turned on or off.</p> <p>Describe ways in which genes are turned on and off during cell differentiation.</p> <p>Interpret a diagram showing the process of turning genes on and off.</p>
Unit 1: Gene Expression Lesson 6: Biotechnology		<p>Explain how DNA technology is used to construct recombinant DNA molecules.</p> <p>Explain how DNA can be inserted into the cells of other organisms to alter their protein production.</p>
Unit 1: Gene Expression Lesson 7: Genetic Engineering		<p>Understand how genetic engineering (biotechnology) is used to produce novel biomedical and agricultural products.</p> <p>Cite examples of products in the modern world that are the result of the technical manipulation of DNA.</p>
Unit 1: Gene Expression Lesson 8: Unit Test	HS-LS1-1, HS-LS1-6	
Unit 2: Evolution Lesson 1: Evolution and Biology		<p>Recognize that an adaptation is a characteristic that helps an organism survive and reproduce in its environment.</p> <p>Recognize that evolution is defined as change over time.</p>

<p>Unit 2: Evolution Lesson 2: Evolution of Populations</p>		<p>Explain that evolution is the genetic change in a population over time.</p> <p>Explain that a population is a spatially connected, interbreeding group belonging to the same species.</p> <p>Understand that all of the alleles within the genes of a population make up the gene pool.</p>
<p>Unit 2: Evolution Lesson 3: Variation in Populations</p>		<p>Explain the source of variability of traits in a population, such as mutation and recombination.</p> <p>Describe the overall idea of natural selection as the mechanism for evolution.</p> <p>Explain the three things that must be present for natural selection to occur: heritability, variability, and differential reproductive success.</p>
<p>Unit 2: Evolution Lesson 4: Types of Natural Selection</p>		<p>Describe some of the different processes of selection: directional, stabilizing, and disruptive.</p> <p>Demonstrate how to interpret graphs of the different processes of selection.</p> <p>Explain how evolution can result from natural selection, genetic drift, mutation, or migration.</p>
<p>Unit 2: Evolution Lesson 5: History of Evolutionary Thought</p>		<p>Use a historical example to explain how new ideas are developed.</p> <p>Explain how Charles Darwin presented an extensive and comprehensive body of evidence for evolution of species by natural selection.</p>
<p>Unit 2: Evolution Lesson 6: Evidence for Evolution 1</p>		<p>Discuss at least five lines of evidence that evolution has occurred and is occurring on earth.</p> <p>Describe how evidence from homology supports the idea of evolution.</p> <p>Describe how evidence from comparative embryology supports the idea of evolution.</p>

		Describe how evidence from vestigial structures supports the idea of evolution.
Unit 2: Evolution Lesson 7: Evidence for Evolution 2		Discuss at least five lines of evidence that evolution has occurred and is occurring on earth.  Describe how evidence from comparative DNA studies supports the idea of evolution.
Unit 2: Evolution Lesson 8: Evolution and Earth History		Explain how the fossil record preserves information about the structure of organisms from the past and that fossils provide information about the chronological order in which organisms lived.  Explain how radioactive dating gives absolute dates of fossils.
Unit 2: Evolution Lesson 9: Laboratory: Process of Natural Selection 1	HS-LS2-1, HS-LS4-2, HS-LS4-3	Demonstrate that natural selection is the differences of survival rates and reproduction of members of a population with particular variations of an inheritable trait.  Understand that natural selection results in differences of survival rates and reproduction of members of a population with variations of an inheritable trait.  Understand that under natural selection pressures, genes are passed on to the next generation in numbers that are not the same as in the original population.
Unit 2: Evolution Lesson 10: Laboratory: Process of Natural Selection 2	HS-LS2-1, HS-LS4-2, HS-LS4-3	Demonstrate that natural selection is the differences of survival rates and reproduction of members of a population with particular variations of an inheritable trait.  Understand that natural selection results in differences of survival rates and reproduction of members of a population with variations of an inheritable trait.  Understand that under natural selection pressures, genes are passed on to the next generation in numbers that are not the same as in the original population.

<p>Unit 2: Evolution Lesson 11: Genetic Basis of Evolution</p>		<p>State the biological significance of shifts in the Hardy-Weinberg equilibrium.</p> <p>Explain the fundamental idea that changes in allele frequencies in a population lead to evolutionary change over time.</p> <p>Explain that the Hardy-Weinberg principle is a mathematical model for how alleles in a sexually reproducing population would remain constant over generations unless affected by processes other than sexual recombination.</p> <p>Recognize that lethal alleles carried by heterozygotes can be maintained in the gene pool</p>
<p>Unit 2: Evolution Lesson 12: The Hardy-Weinberg Equation</p>		<p>Solve the Hardy-Weinberg equation in various scenarios.</p> <p>Explain the significance of genetic drift.</p>
<p>Unit 2: Evolution Lesson 13: Geographic Isolation</p>		<p>Describe the process of geographic isolation.</p>
<p>Unit 2: Evolution Lesson 14: Genetic Isolation</p>		<p>Explain what is meant by speciation and describe how it takes place.</p>
<p>Unit 2: Evolution Lesson 15: Your Choice</p>		
<p>Unit 2: Evolution Lesson 16: Unit Test</p>	<p>HS-LS2-8, HS-LS4-1, HS-LS4-2, HS-LS4-3, HS-LS4-4, HS-LS4-5, HS-LS4-6, HS-ETS1-4</p>	
<p>Unit 3: Survey of Living Things 1 Lesson 1: Classification and Taxonomy</p>		<p>Compare and contrast the processes of taxonomy and classification.</p> <p>Relate how biologists arrange organisms into a hierarchy of groups and subgroups based on similarities and differences.</p> <p>Describe how modern DNA studies are revising the process of classification.</p>
<p>Unit 3: Survey of Living Things 1 Lesson 2: Modern Classification</p>		<p>Explain the hierarchy of the modern classification schemes.</p> <p>Describe the complete taxonomy of a few organisms.</p> <p>List the three domains of life, and give examples of organisms in each.</p>
<p>Unit 3: Survey of Living Things 1 Lesson 3: Laboratory: Dichotomous Key</p>		<p>Relate how biologists arrange organisms into a hierarchy of groups and subgroups based on similarities and differences.</p>

<p>Unit 3: Survey of Living Things 1 Lesson 4: Viruses and Prokaryotes</p>		<p>Compare and contrast a virus and a bacterium.</p> <p>Describe the life cycle of a virus.</p> <p>Compare and contrast archaeans and bacteria.</p> <p>Interpret a phylogenetic tree, and discuss the evolutionary relationships of archaeans and bacteria.</p>
<p>Unit 3: Survey of Living Things 1 Lesson 5: Protists and Fungi</p>		<p>State the general characteristics of protists, and give some examples.</p> <p>State the general characteristics of fungi, and give some examples.</p> <p>Interpret a phylogenetic tree, and discuss the evolutionary relationships of fungi and protists.</p>
<p>Unit 3: Survey of Living Things 1 Lesson 6: Animals</p>		<p>State the general characteristics of animals, and give some examples.</p> <p>Distinguish between invertebrates and vertebrates.</p> <p>Interpret a phylogenetic tree, and discuss the evolutionary relationships of animals.</p>
<p>Unit 3: Survey of Living Things 1 Lesson 7: Plants</p>		<p>State the general characteristics of plants, and give some examples.</p> <p>Distinguish between nonvascular and vascular plants.</p> <p>Interpret a phylogenetic tree, and discuss the evolutionary relationships of plants.</p>
<p>Unit 3: Survey of Living Things 1 Lesson 8: Three Representative Organisms</p>		<p>Compare the biology of a flatworm, a human, and a plant.</p> <p>Compare the morphology of a flatworm, a human, and a plant.</p> <p>Compare the anatomy of a flatworm, a human, and a plant.</p> <p>Compare the life histories of a flatworm, a human, and a plant.</p>
<p>Unit 3: Survey of Living Things 1 Lesson 9: Your Choice</p>		
<p>Unit 3: Survey of Living Things 1 Lesson 10: Getting Energy</p>		<p>Explain the importance of obtaining energy for all organisms.</p> <p>Discuss how each of the three representative organisms (a flatworm, a human, and a plant) acquires energy.</p> <p>Explain the role of cells in the processing of food to the ultimate production of ATP.</p>

		Recognize the importance of obtaining oxygen for all organisms.
Unit 3: Survey of Living Things 1 Lesson 11: Digestion		Explain digestion and waste removal in representative organisms.  Explain the role of cells in the processing of food to the ultimate production of ATP.  Describe the process of digestion in a flatworm, citing examples from its anatomy.
Unit 3: Survey of Living Things 1 Lesson 12: Digestion in Humans		Describe the process of digestion in a human, citing examples from anatomy.  Know the individual functions and sites of secretion of digestive enzymes.  Explain digestion in humans.
Unit 3: Survey of Living Things 1 Lesson 13: Laboratory: Human Digestion Actions 1		Explain digestion and waste removal in representative organisms.  Describe the process of digestion in a human, citing examples from anatomy.  Know the individual functions and sites of secretion of digestive enzymes.
Unit 3: Survey of Living Things 1 Lesson 14: Waste Removal		Explain digestion and waste removal in representative organisms.  Describe the process of waste removal in a flatworm, citing examples from its anatomy.  Describe the process of waste removal in a plant.
Unit 3: Survey of Living Things 1 Lesson 15: Laboratory: Human Digestion Actions 2		Explain digestion and waste removal in representative organisms.  Describe the process of digestion in a human, citing examples from anatomy.  Know the individual functions and sites of secretion of digestive enzymes.
Unit 3: Survey of Living Things 1 Lesson 16: Waste Removal in Humans		Explain digestion and waste removal in representative organisms.  Describe the process of waste removal in a human.  Describe the role of the kidneys in the removal of nitrogenous wastes and the role of the liver in blood detoxification.  Interpret a diagram showing the function of a kidney.

Unit 3: Survey of Living Things 1 Lesson 17: Obtaining Oxygen		<p>Recognize the importance of obtaining oxygen for all organisms.</p> <p>Explain the importance of oxygen to most living things.</p> <p>Describe the process of obtaining and distributing oxygen in a flatworm, citing examples from its anatomy.</p> <p>Describe the role of oxygen in the life of a plant.</p>
Unit 3: Survey of Living Things 1 Lesson 18: Oxygen and the Human Body		<p>Describe the process of obtaining and distributing oxygen in a human.</p> <p>Describe the role of the lungs in the exchange of gases.</p> <p>Interpret a diagram showing the function of a human lung.</p> <p>Interpret a diagram showing the structure of the human circulatory system.</p>
Unit 3: Survey of Living Things 1 Lesson 19: Your Choice		
Unit 3: Survey of Living Things 1 Lesson 20: Unit Test	HS-LS1-2, HS-LS1-5, HS-LS1-7, HS-PS1-7	
Unit 4: Survey of Living Things 2 Lesson 1: How Organisms Monitor Their Environments		<p>Describe, with reference to anatomy, how a flatworm monitors its environment. Interpret a diagram showing the transmission of electrochemical impulses in a neuron.</p>
Unit 4: Survey of Living Things 2 Lesson 2: Human Nervous System		<p>Understand how the nervous system mediates communication between the body and the environment.</p> <p>Describe the structure of the nervous system.</p> <p>State how the nervous system mediates communication between different parts of the body and the body's interactions with the environment.</p>
Unit 4: Survey of Living Things 2 Lesson 3: Feedback Mechanisms		<p>Describe the function of feedback loops in the nervous system.</p>
Unit 4: Survey of Living Things 2 Lesson 4: How Living Things Respond to Their Environments		<p>Describe the various hormonal responses plants have to their environment.</p>
Unit 4: Survey of Living Things 2 Lesson 5: Muscular Systems		<p>Describe the structure and function of the muscular system.</p>

		Describe muscular systems of a flatworm and a human.
Unit 4: Survey of Living Things 2 Lesson 6: How Muscles Contract		Explain the relationship between bone and muscles with regard to movement.  Describe the cellular and molecular basis of muscle contractions.
Unit 4: Survey of Living Things 2 Lesson 7: Laboratory: Chicken Muscles 1		Explain the relationship between bone and muscles with regard to movement.
Unit 4: Survey of Living Things 2 Lesson 8: Laboratory: Chicken Muscles 2		Explain the relationship between bone and muscles with regard to movement
Unit 4: Survey of Living Things 2 Lesson 9: Fern Reproduction		Distinguish different reproductive patterns in living things.  Understand the basics of plant sexual and asexual reproduction.  Interpret a diagram of the life cycle of a flowering plant.
Unit 4: Survey of Living Things 2 Lesson 10: Flatworm Reproduction		Distinguish different reproductive patterns in living things.  Interpret a diagram of the life cycle of a flatworm.  Understand the basics of flatworm sexual and asexual reproduction.
Unit 4: Survey of Living Things 2 Lesson 11: Human Reproduction		Distinguish different reproductive patterns in living things.  Interpret a diagram of the life cycle of a human.  Understand the basics of human reproduction.
Unit 4: Survey of Living Things 2 Lesson 12: How Organisms Defend Themselves		Describe how organisms defend themselves, including explaining the structure and function of the immune system.  State the role of the skin in providing nonspecific defenses against infection.  Compare and contrast characteristics of

		and treatments for accidental, infectious, and genetic disorders.
Unit 4: Survey of Living Things 2 Lesson 13: Human Immune Response 1		State the role of various immune response cells in the immune system.  State the role of antibodies in the body's response to infection.
Unit 4: Survey of Living Things 2 Lesson 14: Human Immune Response 2		Describe how a compromised immune system may be unable to respond to common infections.  Describe differences between bacteria and viruses with respect to the body's primary defenses against these infectious organisms.
Unit 4: Survey of Living Things 2 Lesson 15: Plant Defenses		Describe some internal plant defenses and mechanisms of defensive action.  Describe external plant defenses, and be able to recognize them in new examples.
Unit 4: Survey of Living Things 2 Lesson 16: Your Choice		
Unit 4: Survey of Living Things 2 Lesson 17: Unit Test	HS-LS1-2, HS-LS1-3	
Unit 5: Ecology and the Environment Lesson 1: Individuals and Populations		Recognize that the environment has nonliving parts such as space, weather, climate, sunlight, nutrients, gases, and water in addition to living parts, including all organisms living there.  Identify the relationships among organisms within populations, communities, ecosystems, and biomes.  Explain that individuals exist in populations.  Understand that populations grow exponentially unless a limiting factor intervenes.  State how changes in population size reflect the rates of birth, immigration, emigration, and death.  Explain that individuals interact with their living and nonliving environments.

<p>Unit 5: Ecology and the Environment Lesson 2: Communities</p>		<p>Identify the relationships among organisms within populations, communities, ecosystems, and biomes.</p> <p>Explain that individuals exist in populations.</p> <p>Understand that populations grow exponentially unless a limiting factor intervenes.</p> <p>State how changes in population size reflect the rates of birth, immigration, emigration, and death.</p> <p>Explain that individuals interact with their living and nonliving environments.</p>
<p>Unit 5: Ecology and the Environment Lesson 3: Ecosystems</p>		<p>Identify the relationships among organisms within populations, communities, ecosystems, and biomes.</p> <p>Understand that an ecosystem can be defined and described in many forms and may vary in size.</p> <p>Give examples of the natural world, and be able to determine various types of ecosystems.</p>
<p>Unit 5: Ecology and the Environment Lesson 4: Ecosystem Stability</p>		<p>Discuss the importance of ecosystem stability.</p> <p>Cite examples of ecosystems that have become unstable, and describe what has happened to those ecosystems.</p>
<p>Unit 5: Ecology and the Environment Lesson 5: Biomes</p>		<p>Identify the relationships among organisms within populations, communities, ecosystems, and biomes.</p> <p>Explain that a biome is a large geographic area dominated by specific kinds of plants and animals.</p> <p>Understand that there are many different aquatic and terrestrial biomes.</p> <p>Explain that aquatic biomes occupy the largest part of the world.</p> <p>Given photographs of natural areas, tell the name of the biome, and describe its characteristic plants and animals</p>
<p>Unit 5: Ecology and the Environment Lesson 6: Biodiversity</p>		<p>State that biodiversity is the total of different kinds of organisms in an area.</p> <p>Discuss biological diversity as an indicator of a healthy environment.</p> <p>Cite an example of past species</p>

		extinction and how it affected ecosystems.
Unit 5: Ecology and the Environment Lesson 7: Energy Flow in Ecosystems		<p>Explain how matter cycles and energy flows through the different levels of organization of living systems (cells, organs, organisms, and communities) and their environment.</p> <p>Describe how matter and energy flow through the different levels of organization of living systems.</p> <p>Explain how energy flows through all feeding levels: producers, primary consumers, secondary consumers, and tertiary consumers.</p> <p>Describe how all trophic levels are subject to action by decomposers and detritivores.</p> <p>Discuss how stability of producers and decomposers is an important part of an ecosystem.</p>
Unit 5: Ecology and the Environment Lesson 8: Food Chains and Food Webs		<p>Describe a food chain as a pathway along which food is transferred from one trophic level to another.</p> <p>Explain that when food chains are joined, their relationship is called a food web.</p> <p>Given an energy pyramid, explain the changes in energy among different trophic levels of an ecosystem.</p>
Unit 5: Ecology and the Environment Lesson 9: Your Choice		
Unit 5: Ecology and the Environment Lesson 10: Mid-Unit Test	HS-LS2-3,HS-LS2-4,HS-LS2-5	
Unit 5: Ecology and the Environment Lesson 11: Succession		<p>Analyze changes in an ecosystem resulting from the introduction of nonnative species and changes in population size.</p> <p>Given a set of photographs showing ecological succession, describe what is happening, and suggest reasons for the changes.</p>
Unit 5: Ecology and the Environment Lesson 12: Laboratory: Patterns of Succession		Conduct an investigation to show patterns of change in an ecosystem.
Unit 5: Ecology and the Environment Lesson 13: Changes in Ecosystems		<p>Analyze changes in an ecosystem resulting from changes in climate.</p> <p>Analyze changes in an ecosystem resulting from changes in human activity.</p>

Unit 5: Ecology and the Environment Lesson 14: Water and Nitrogen Cycles		Interpret a diagram of the nitrogen cycle.  Interpret a diagram of the water cycle.
Unit 5: Ecology and the Environment Lesson 15: Carbon and Oxygen Cycles		Interpret a diagram of the carbon cycle.  Interpret a diagram of the oxygen cycle.
Unit 5: Ecology and the Environment Lesson 16: Laboratory: Fixation in Root Nodules 1		Analyze root nodules, and relate their structure to function.  Relate the nitrogen cycle to the presence of root nodules in some plants.
Unit 5: Ecology and the Environment Lesson 17: Laboratory: Fixation in Root Nodules 2		Analyze root nodules, and relate their structure to function.  Relate the nitrogen cycle to the presence of root nodules in some plants.
Unit 5: Ecology and the Environment Lesson 18: Laboratory: The Effects of Acidity on Seed Germination 1		Use this time to prepare for an upcoming lab.
Unit 5: Ecology and the Environment Lesson 19: Natural Resources		Describe the difference between renewable and nonrenewable resources.  Illustrate how acquisition and use of resources have affected the quality of human life.
Unit 5: Ecology and the Environment Lesson 20: Environmental Challenges		Discuss some environmental issues that confront modern society.
Unit 5: Ecology and the Environment Lesson 21: Global Temperatures		Analyze one environmental issue in detail.
Unit 5: Ecology and the Environment Lesson 22: Pollution		Discuss the factors that determine the effects of pollution.  Explain how the control of pollution factors can increase the quality of human life.
Unit 5: Ecology and the Environment Lesson 23: Laboratory: The Effects of Acidity on Seed Germination 2 Discuss: Effect of Acidity on Seeds		Conduct an investigation that shows how an environmental factor can affect a life-form.
Unit 5: Ecology and the Environment Lesson 24: Your Choice		
Unit 5: Ecology and the Environment Lesson 25: Unit Test	Hs-LS2-2 HS-LS2-3 HS-LS2-4 HS-LS2-5 HS-LS2-6 HS-LS2-7 HS-LS4-6 HS-ETS1-3 HS-ESS2-4 HS-ESS2-5	

<p>Unit 6: Semester 2 Review and Test Lesson 1: Semester Review</p>		
<p>Unit 6: Semester 2 Review and Test Lesson 2: Your Choice</p>		
<p>Unit 6: Semester 2 Review and Test Lesson 3: Your Choice</p>		
<p>Unit 6: Semester 2 Review and Test Lesson 4: Semester Test</p>		
<p>Unit 7: Honors Project 1: Issues in Science Lesson 1: Debates: A Different Way to Argue</p>		<p>Explain the difference between a debate and a verbal dispute.</p> <p>Explain why people debate.</p> <p>Describe the three types of debate propositions: fact, value, and policy.</p> <p>Describe the traditional debate format.</p> <p>Explore controversial, complex issues in biology.</p> <p>Explore controversial issues in biology.</p>
<p>Unit 7: Honors Project 1: Issues in Science Lesson 2: Gathering Evidence</p>		<p>Describe best practices for debate research such as researching both sides of the issue, keeping track of sources, and examining sources for credibility.</p> <p>Analyze and evaluate evidence regarding a controversial scientific issue.</p> <p>Evaluate research sources.</p>
<p>Unit 7: Honors Project 1: Issues in Science Lesson 3: Building a Case</p>		<p>Describe the traditional debate format.</p> <p>Explain the components of a well-constructed argument.</p> <p>Improve critical thinking and communication skills through debate.</p> <p>Develop and practice skills in formulating and writing well-articulated arguments.</p>
<p>Unit 7: Honors Project 1: Issues in Science Lesson 4 :Reasoning and Refutation</p>		<p>Describe six logical fallacies common to debates.</p> <p>Define three ways to refute an argument.</p>

		Apply a four-tiered structure to the construction of rebuttal arguments.
Unit 7: Honors Project 1: Issues in Science Lesson 5: Effective Debating Strategies		Develop tolerance of the ideas of peers and professionals.  Develop tolerance of peers' ideas.  Explain the skills required of good debaters.
Unit 7: Honors Project 1: Issues in Science Lesson 6: Debate: Constructive Argument		Develop and practice skills in formulating and writing well-articulated arguments.  Develop tolerance of peers' ideas.  Explore controversial, complex issues in biology.  Explore controversial issues in biology.
Unit 7: Honors Project 1: Issues in Science Lesson 7: Debate: First Rebuttal		Develop and practice skills in formulating and writing well-articulated arguments.  Develop tolerance of peers' ideas.  Explore controversial, complex issues in biology.  Explore controversial issues in biology.
Unit 7: Honors Project 1: Issues in Science Lesson 8: Debate: Second Rebuttal		Develop and practice skills in formulating and writing well-articulated arguments.  Develop tolerance of the ideas of peers and professionals.  Develop tolerance of peers' ideas.  Explore controversial, complex issues in biology.  Explore controversial issues in biology.
Unit 7: Honors Project 1: Issues in Science Lesson 9: Debate: Summary Argument		Develop and practice skills in formulating and writing well-articulated arguments.  Develop tolerance of the ideas of peers and professionals.  Develop tolerance of peers' ideas.  Explore controversial, complex issues in biology.

		Explore controversial issues in biology.
Unit 7: Honors Project 1: Issues in Science Lesson 10: Discuss: Issues in Science	HS-ETS1-5	Develop and practice skills in formulating and writing well-articulated arguments.  Develop tolerance of the ideas of peers and professionals.  Develop tolerance of peers' ideas.  Explore controversial, complex issues in biology.  Explore controversial issues in biology.
Unit 8: Honors Project 2: Laboratory: Antibiotic Resistance Lesson 1: Laboratory: Antibiotic Resistance	HS-ETS1-5	Conduct a valid scientific experiment.  Analyze data and report results.  Determine the comparative effectiveness of five antibiotics.