

Wyoming Department of Education Required Virtual Education Course Syllabus

Natrona County School District # 1

Program Name	Natrona Virtual Learning	Content Area	SC
Course ID	NVA07700212	Grade Level	7
Course Name	SCI107 MS Life Science	o Credits	
SCE Code	77002	Curriculum Type	K1 Inc

COURSE DESCRIPTION

The K12 Life Science Sem. 1 program invites students to investigate the world of living things—at levels both large and small—by reading, observing, and experimenting with aspects of life on Earth. Students explore a amazing variety of organisms, the complex workings of the cell, the relationship between living things and their environments, and discoveries in the world of modern genetics. Practical, hands-on lesson activities help students discover how scientists investigate the living world. Students perform laboratory activities and a full-unit investigation to learn about the application of scientific methods

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
8.1.1	Levels of Organization in Living Systems: Students model the cell as the basic unit of living system. They realize that all functions that sustain life act within single cell and cells differentiate into specialized cells, tissues, organs, and organ systems.
8.1.2	Reproduction and Heredity: Students describe reproduction as a characteristic of all living systems, which is essential to the continuation of species, and identify and interpret traits, patterns of inheritance, and the interaction between genetics and environment.
8.1.3	Evolution as Theory: Students explain evolution as theory and apply the theory to the diversity of species, which results from natural selection and the acquisition of unique characteristics through biological adaptation.
8.1.4	Diversity of Organisms: Students investigate the interconnectedness of organisms, identifying similarity and diversity of organisms through classification system of hierarchical relationships and structural homologies.
8.1.5	Behavior and Adaptation: Students recognize behavior as a response of an organism to an internal or environmental stimulus and connect the characteristics and behaviors of an organism to biological adaptation.
8.1.6	Interrelationships of Populations and Ecosystems: Students illustrate populations of organisms and their interconnection within an ecosystem, identifying relationships among producers, consumers, and decomposers

8.1.11	Physical and Chemical Changes in Matter: Students evaluate chemical and physical changes, recognizing that chemical change forms compounds with different properties and that physical change alters the appearance but not the composition of substance.
8.2.1	Students research scientific information and present findings through appropriate means.
8.2.2	Students use inquiry to conduct scientific investigations. Ask questions that lead to conducting an investigation. Collect, organize, and analyze and appropriately represent data. Draw conclusions based on evidence and make connections to applied scientific concepts. Clearly and accurately communicate the result of the investigations.
8.2.3	Students clearly and accurately communicate the result of their own work, as well as information obtained from other sources.
8.2.4	Students recognize the relationship between science and technology in meeting human needs.
8.2.5	Students properly use appropriate scientific and safety equipment, recognize hazards and safety symbols, and observe standard safety procedures.

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Module 1: Organisms Lesson 1.01: Organisms	8.1.1	Introduce concepts to be covered during the Life Science course. Use taxonomic organization to identify and compare different organisms. Define biology. Define organism. Describe some unique characteristics of various organisms on earth.
Module 1: Organisms Lesson 1.02: Diversity of Life		State the range of sizes of organisms on Earth. Apply research on unfamiliar organisms and their environment to create a new organism that would survive in that environment. Define organism. Describe some unique characteristics of various organisms on earth.
Module 1: Organisms Lesson 1.03: Design a Madagascar Organism	8.1.1 8.1.5	Identify the three basic challenges all organisms must meet.
Module 1: Organisms Lesson 1.03: Design a Madagascar Organism (cont.)		
Module 1: Organisms Lesson 1.04: Challenges of Life	8.1.1	Describe the challenge of getting energy, the challenge of reproducing, and the challenge of maintaining structure. Give examples of how different organisms meet these challenges. Identify the three basic challenges all organisms must meet. Describe the challenge of getting energy, the challenge of reproducing, and the challenge of maintaining structure. Give examples of how different

		organisms meet these challenges. Identify the three basic challenges all organisms must meet.
Module 1: Organisms Lesson 1.05: Characteristics of Life	8.1.1 8.1.4	Give examples of these characteristics in different organisms. Identify seven characteristics of living things. Identify the basic needs of living things: food, water, air, and an appropriate environment. Summarize why it is difficult to be exact about the definition of "living."
Module 1: Organisms Lesson 1.06: You Are an Organism	8.1.1 ; 8.1.4 ;	Give examples of these characteristics in different organisms. Identify seven characteristics of living things. Identify the basic needs of living things: food, water, air, and an appropriate environment.
Module 1: Organisms Lesson 1.07: Living Things Classification	8.1.4 ;	Define species. Define taxonomy. Explain how organisms are related based on a hierarchy of groups and subgroups. Recognize that Linnaeus created the first accepted scientific method for naming organisms.
Module 1: Organisms Lesson 1.08: Make a Dichotomous Key	8.1.4 ;	Create a dichotomous key and utilize it to classify the features of an animal. Define species. Define taxonomy. Describe what is a dichotomous key and what it is used for. Explain how organisms are related based on a hierarchy of groups and subgroups.
Module 1: Organisms Lesson 1.09: Domains of Life	8.1.4 ;	Explain how a dichotomous key is used to identify organisms. Explain how an organism is related to classification levels above and below it. Identify the three domains of life and name at least one organism within each domain.
Module 1: Organisms Lesson 1.10: Classifying Organisms	8.1.4 ;	Define taxonomy. Develop a taxonomic chart to classify different organisms. State the levels of taxonomic organization and explain how an organism is related to levels above and below it.
Module 1: Organisms Lesson 1.11: Chemistry of Life	8.1.4 ;	Recognize that carbon has a central role in the chemistry of living organisms. Recognize that living organisms are made of different types of molecules such as water, salt, fats, proteins, and DNA. Recognize that living organisms are made of molecules consisting largely of carbon, hydrogen, nitrogen, oxygen, phosphorus, and sulfur. Define the term organic molecule and recognize why carbon is the basis for the vast array of organic molecules. Recognize the four fundamental types of organic molecules. Compare and contrast a simple and a complex carbohydrate molecule and recognize examples of each.
Module 1: Organisms Lesson 1.12: Collage of Compounds	8.1.1;	Define the term organic molecule and recognize why carbon is the basis for the vast array of organic molecules. Recognize the four fundamental types of organic molecules. Compare and contrast a simple and

		a complex carbohydrate molecule and recognize examples of each.
Module 1: Organisms Lesson 1.13: Single-Celled Organisms	8.1.1;	Describe and illustrate a single-celled organism. Distinguish between unicellular and multicellular organisms. Explain that a single cell must carry out all of the basic functions of life in single-celled organisms. Recognize that contagious diseases are caused by microorganisms. Recognize that many organisms are single celled (fexample, bacteria, yeasts).
Module 1: Organisms Lesson 1.14: Multicellular Organisms	8.1.1;	Explain that cells within a multicellular organism differentiate as the organism develops. Recognize that many organisms are multicellular, and describe their advantages.
Module 1: Organisms Lesson 1.15: Module Review	8.1.1;	
Module 1: Organisms Lesson 1.15: Module Review (cont.)		
Module 1: Organisms Lesson 1.16: Module Exam	8.1.1;	
Module 2: Cells Lesson 2.01: Cells	8.1.1 ;	Define the cell as the basic unit of structure and function in all living things. Describe how chemical functions of organisms begin and take place within a cell. Explain that the nucleus of a cell contains instructions about living and growing. Recognize that the cell contains genetic information.
Module 2: Cells Lesson 2.02: Cell Exploration	8.1.1 ;	Compare and contrast different types of cells from different organisms. Define the cell as the basic unit of structure and function in all living things. Describe how chemical functions of organisms begin and take place within a cell. Research pictures and information of cells online to become aware of the many diverse types of cells.
Module 2: Cells Lesson 2.03: Cell Size	8.1.1 ;	Calculate the surface area of a model cell using the cell's side length. Create models of three different size cells to describe a cell's size and surface area.
Module 2: Cells Lesson 2.04: Differing Cells	8.1.1 ;	Define prokaryotic cells as simple structures that lack a cell nucleus other membrane-enclosed structures. Describe eukaryotic cells as containing membrane-enclosed structures, such as a nucleus and other organelles. Give examples of eukaryotic cells. Give examples of prokaryotic cells.
Module 2: Cells Lesson 2.05: The Plasma Membrane	8.1.1 ;	Define plasma membrane and state its function as part of the cell. Describe the roles of the different kinds of embedded proteins in the plasma membrane. Illustrate a plasma

		membrane, showing the positions of the phospholipids and the different kinds of embedded proteins. Illustrate the structure of a phospholipid and describe its arrangement in the plasma membrane.
Module 2: Cells Lesson 2.06: Cell Organelles	8.1.1 ;	Describe the cell as a system of organelles mirroring the systems within multicellular organisms. Draw and label the parts of a eukaryotic cell. Draw and label the parts of a prokaryotic cell. Explain that the basic chemical functions of organisms (extracting energy from food, getting rid of wastes, and so on) begin occur within the cell. Recognize the functions of the majcomponents of cells, including structures of prokaryotic cells and organelles of eukaryotic cells. Recognize which organelles of eukaryotic cells are part of the majinternal membrane system.
Module 2: Cells Lesson 2.07: If You Were an Organelle	8.1.1 ;	Describe the cell as a system of organelles mirroring the systems within multicellular organisms. Explain that the basic chemical functions of organisms (extracting energy from food, getting rid of wastes, and so on) begin occur within the cell. Recognize the functions of the majcomponents of cells, including structures of prokaryotic cells and organelles of eukaryotic cells. Recognize which organelles of eukaryotic cells are part of the majinternal membrane system.
Module 2: Cells Lesson 2.08: Cell Origami Review Tool	8.1.1 ;	Describe the cell as a system of organelles mirroring the systems within multicellular organisms. Draw and label the parts of a eukaryotic cell. Draw and label the parts of a prokaryotic cell. Recognize the functions of the majcomponents of cells, including structures of prokaryotic cells and organelles of eukaryotic cells. Recognize which organelles of eukaryotic cells are part of the majinternal membrane system.
Module 2: Cells Lesson 2.09: Looking at Cells	8.1.1 ; 8.2.1, 8.2.2, 8.2.4, 8.2.5	Analyze, critique, and communicate the results of investigations. Draw and label the parts of a typical prokaryotic and a eukaryotic cell. Recognize that scientific explanations come from observations.
Module 2: Cells Lesson 2.10: Cell Analogy	8.1.1 ;	Compare the parts of a cell and the cell as a whole to another common non-living system (i.e. a car, a city, etc.). Describe the parts of a cell and their primary function.
Module 2: Cells Lesson 2.11 Plant and Animal Cells	8.1.1 ;	Compare and contrast plant and animal cells. Identify different structures, such as chloroplasts and the cell wall, that differentiate plant and animal cells. Recognize that plants and animals have levels of organization fstructure and function: cells, tissues, organs, organ systems, and the whole

		organism. Recognize that the nucleus is the repository for genetic information in plant and animal cells.
Module 2: Cells Lesson 2.12: Cell Communication	8.1.1 ;	
Module 2: Cells Lesson 2.13: How Cells Communicate	8.1.1 ;	Differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole.
Module 2: Cells Lesson 2.14: Module Review		
Module 2: Cells Lesson 2.14: Module Review (cont.)		
Module 2: Cells Lesson 2.15: Module Exam	8.1.1	Compare and contrast plant and animal cells. Compare and contrast prokaryotic and eukaryotic cells.
Module 3: Cells and Energy Lesson 3.01: Cells and Energy	8.1.1 ;	Explain how sunlight provides energy, directly indirectly, to all living things on earth. Explain the main function of chloroplasts. Explain the role of mitochondria in converting and releasing stored energy in cells. Identify mitochondria in an illustration of a cell.
Module 3: Cells and Energy Lesson 3.02: Photosynthesis	8.1.1 ; 8.1.6 ;	Explain why photosynthesis is an essential process for life on Earth, emphasizing the role of glucose. Interpret the absorption spectra of two types of chlorophyll. Write the equations for photosynthesis and cellular respiration, showing the products and reactants.
Module 3: Cells and Energy Lesson 3.03: Phases of Photosynthesis	8.1.1 ; 8.1.6 ;	Describe the Calvin cycle, emphasizing reactants and products. Describe the first two stages of photosynthesis. Distinguish between the different kinds of reactions of photosynthesis. Write the equation for photosynthesis, showing the products and reactants, and describe what happens to each product of the process.
Module 3: Cells and Energy Lesson 3.04: Modeling the Calvin Cycle	8.1.1 ;	Describe the Calvin cycle, emphasizing reactants and products. Describe the first two stages of photosynthesis.
Module 3: Cells and Energy Lesson 3.05: Breaking Down Glucose	8.1.1 ;	Describe the process of glycolysis. Describe the products and reaction of two kinds of fermentation. Distinguish between the different ways that glucose is broken down in the cell. Identify some products and reactions of the Krebs cycle and the electron transport system.
Module 3: Cells and Energy Lesson 3.06: The Breakdown of Glucose	8.1.1 ;	Describe how to use a process flowchart to map the breaking down of glucose processes. Describe the process of glycolysis. Describe the products and reaction of two kinds of fermentation. Identify some products and reactions of the Krebs cycle and the electron

		transport system.
Module 3: Cells and Energy Lesson 3.07: Making ATP	8.1.1 ; 8.1.11	Define an electron transport system and state its function. Describe the process of the electron transport system in the context of glucose breakdown. List the reactants and products in the electron transport system.
Module 3: Cells and Energy Lesson 3.08: How ATP Works in the Cell	8.1.1 ;	Describe what happens when ATP is involved in a chemical reaction. Distinguish between ATP and ADP. Illustrate a molecule of ATP and describe its parts.
Module 3: Cells and Energy Lesson 3.09: ATP, ADP, and AMP	8.1.1 ;	Describe how energy is released added during the bond breaking bond forming processes between ATP, ADP, and AMP. Describe the process of creating ATP, ADP, and AMP models. Distinguish between ATP and ADP. Illustrate a molecule of ATP and describe its parts.
Module 3: Cells and Energy Lesson 3.10: Diffusion and Osmosis	8.1.1 ;	Compare and contrast diffusion and osmosis. Define diffusion as the movement of atoms and molecules from an area of higher concentration to an area of lower concentration, and explain its importance. Describe the movement of water across the cell membrane of a cell as osmosis, and explain its importance.
Module 3: Cells and Energy Lesson 3.11: Cell Division	8.1.2 ; 8.1.1 ;	Define cell cycle and mitosis and state the relationship between the two. Define the cell cycle as the sequence of events in the life cycle of a cell. Describe mitosis as a process of replicating genetic material within the nucleus. Distinguish how cytokinesis occurs in animals and in plants. Recognize and label the phases of mitosis and describe what happens to each chromosome during the process. Recognize cell division as a recurring process that contributes to growth and repair. Recognize the function of mitosis, including its role in the cell cycle. Recognize that the nucleus is the repository fgenetic information in plant and animal cells.
Module 3: Cells and Energy Lesson 3.12: Mitosis	8.1.2 ;	Compare and contrast the cell cycle and mitosis. Define cell cycle and mitosis and state the relationship between the two. Distinguish how cytokinesis occurs in animals and in plants. Give examples of different types of cells that undergo cell division (e.g., skin cells, blood cells, cells that line the mouth). Interpret a diagram that shows the phases of mitosis and describe what happens during this process. Recognize and label the phases of mitosis and describe what happens to each chromosome during the process. Recognize the function of mitosis, including its role in the

		cell cycle.
Module 3: Cells and Energy Lesson 3.13: The Meaning of Mitosis	8.1.2 ;	Define cell cycle and mitosis and state the relationship between the two. Recognize and label the phases of mitosis and describe what happens to each chromosome during the process. Distinguish how cytokinesis occurs in animals and in plants. Recognize the function of mitosis, including its role in the cell cycle.
Module 3: Cells and Energy Lesson 3.14: Module Review	8.1.1 ;	Compare and contrast plant and animal cells.
Module 3: Cells and Energy Lesson 3.14: Module Review (cont.)		
Module 3: Cells and Energy Lesson 3.15: Module Exam	8.1.1 ;	Compare and contrast plant and animal cells. Describe how chemical functions of organisms start and are carried out within a cell and how material moves in and out of the cell.
Module 4: Living Systems Lesson 4.01: Living Systems	8.1.1 ;	Describe how cells differentiate as multicellular organisms develop. Explain how organ systems (organs, tissues, and cells) function, and recognize that failure of any part may affect the entire system. Explain the hierarchical relationships of cells, tissues, organs, and organ systems. Relate diversity of cell structure to diversity of function within an organism.
Module 4: Living Systems Lesson 4.02: Levels of an Organ System	8.1.1 ;	Explain how organ systems (organs, tissues, and cells) function, and recognize that failure of any part may affect the entire system. Explain the hierarchical relationships of cells, tissues, organs, and organ systems. Explain the levels of organization within the body.
Module 4: Living Systems Lesson 4.03: Muscular and Skeletal Systems	8.1.1 ;	Compare the skeletal systems of animals and plants. Describe the structure and function of the muscular and skeletal systems. Explain how bones and muscles work together to allow fanimal locomotion.
Module 4: Living Systems Lesson 4.04: Chicken Wing Anatomy	8.2.1, 8.2.2, 8.2.3, 8.2.4,8.2.5	Analyze, critique, and communicate the results of investigations. Recognize that scientific explanations come from observations.
Module 4: Living Systems Lesson 4.05: Respiratory System	8.1.1 ; 8.1.3 ; 8.1.5 ; 8.1.4 ;	Compare and contrast gills and lungs. Compare and contrast the respiratory systems of a grasshopper, a fish, and a mammal. Compare the circulatory systems of animals with two-chambered, three-chambered, and four-chambered hearts. Compare the respiratory systems of animals and plants. Describe the function of the respiratory system in organisms. Describe the functions of organs and other structures in the respiratory system. Describe the movement of blood through the chambers of a mammalian heart and elements

		of the mammalian circulatory system, including distinguishing between arteries and veins. Describe the route of blood through the human circulatory system.
Module 4: Living Systems Lesson 4.06: Circulatory System	8.1.1 ; 8.1.3 ; 8.1.4 ; 8.1.5 ;	Compare and contrast the respiratory systems of a grasshopper, a fish, and a mammal. Compare the circulatory system of animals and plants. Compare the circulatory systems of animals with two-chambered, three-chambered, and four-chambered hearts. Describe the function of the circulatory system in organisms. Describe the movement of blood through the chambers of a mammalian heart and elements of the mammalian circulatory system, including distinguishing between arteries and veins. Describe the functions of organs in the circulatory system. Describe the route of blood through the human circulatory system. Describe the structure and function of the human respiratory system. Identify the structure of the circulatory system and organs within this system of different organisms. Illustrate the anatomy of a mammalian heart. Recognize the function of circulatory systems of animals.
Module 4: Living Systems Lesson 4.07: How the Blood and Air Flow	8.1.1 ; 8.1.3 ; 8.1.4 ; 8.1.5 ;	Compare and contrast the respiratory systems of a grasshopper, a fish, and a mammal. Compare the circulatory systems of animals with two-chambered, three-chambered, and four-chambered hearts. Describe the movement of blood through the chambers of a mammalian heart and elements of the mammalian circulatory system, including distinguishing between arteries and veins. Describe the route of blood through the human circulatory system. Describe the structure and function of the human respiratory system.
Module 4: Living Systems Lesson 4.08: Digestive and Excretory Systems	8.1.1 ; 8.1.3 ; 8.1.4 ; 8.1.5 ;	Compare the digestive and excretory systems of animals and plants. Describe the function of the digestive and excretory systems in organisms. Describe the functions of organs and other structures in the digestive and excretory systems. Identify the structure of the digestive and excretory systems and organs within these systems.
Module 4: Living Systems Lesson 4.09: Digestive Journey	8.1.1 ;	Identify the structure of the digestive and excretory systems and organs within these systems.
Module 4: Living Systems Lesson 4.10: Nervous System	8.1.1 ; 8.1.3 ; 8.1.4 ; 8.1.5 ;	Compare and contrast the nervous systems of a hydra, a flatworm, and a fish. Label a diagram of the structure of the vertebrate nervous system, and recognize the name of the division that connects with the internal organs. Recognize that nervous systems vary

		with the animal's niche and associated behavioral adaptations. Recognize the definition of a reflex and the advantage of a reflex over other types of behavior in some situations.
Module 4: Living Systems Lesson 4.11: Paralysis and the CNS	8.1.4 ;	Recognize how a nerve signal passes along a nerve axon.
Module 4: Living Systems Lesson 4.12: Immune and Lymphatic Systems	8.1.4 ;	Define the immune system as a network of cells, tissues, and organs that help to defend the body against harmful substances. Describe how plants defend themselves against disease. Explain how the immune and lymphatic systems work together for certain human body defense processes. Explain the role of the lymphatic system in the human body. Explain the role of white blood cells in the immune system. Recognize that antigens may trigger an immune response, and cells of the immune system that recognize these antigens remain in the system for a long period of time to fight off subsequent invaders.
Module 4: Living Systems Lesson 4.13: The Immune Response	8.1.4 ;	Distinguish between specific and non-specific defenses of the body's immune system. Explain the role of white blood cells in the immune system. Recognize that antigens may trigger an immune response, and cells of the immune system that recognize these antigens remain in the system for a long period of time to fight off subsequent invaders.
Module 4: Living Systems Lesson 4.14: Endocrine and Integumentary	8.1.4 ;	Recognize some important features of the structure and function of the human endocrine system. Recognize some important features of the structure and function of the human integumentary system.
Module 4: Living Systems Lesson 4.15: How Systems Work Together	8.1.4 ;	Compare major features and functions of plant and animal systems. Give an example of how a problem in one part of a body system can affect the entire system.
Module 4: Living Systems Lesson 4.16: Module Review	8.1.4 ;	
Module 4: Living Systems Lesson 4.16: Module Review (cont.)		
Module 4: Living Systems Lesson 4.17 Module Exam	8.1.4 ;	
Module 5: Animals and Species Lesson 5.01: Animals and Species	8.1.3 ;	Describe some of the advantages and challenges that come with evolution from the unicellular to the multicellular life-form. Describe the structure of a flatworm, illustrate an example, and label its parts. Describe the structure of a sponge; illustrate an example, and label its parts. Explain the biology of

		<p>flatworms, citing their characteristics, diversity, habitat, and methods of feeding, reproduction, and locomotion. Explain the biology of sponges, citing their characteristics, diversity, habitat, methods of feeding, reproduction, and locomotion.</p>
<p>Module 5: Animals and Species Lesson 5.02: Cnidarians and Roundworms</p>	<p>8.1.3 ;</p>	<p>Compare and contrast asymmetry, bilateral symmetry, and radial symmetry. Describe the structure of a cnidarian; illustrate an example and label its parts. Describe the structure of a mollusk, illustrate an example, and label its parts. Describe the structure of a roundworm, illustrate an example, and label its parts. Explain the biology of cnidarians, citing their characteristics, diversity, habitat, and methods of feeding, reproduction, and locomotion. Explain the biology of mollusks, citing their characteristics, diversity, habitat, and methods of feeding, reproduction, and locomotion. Explain the biology of roundworms, citing their characteristics, diversity, habitat, and methods of feeding, reproduction, and locomotion.</p>
<p>Module 5: Animals and Species Lesson 5.03: Annelids and Arthropods</p>	<p>8.1.3 ;</p>	<p>Describe the structure of an annelid, illustrate an example, and label its parts. Describe the structure of an arthropod, illustrate an example, and label its parts. Describe the structure of an echinoderm, illustrate an example, and label its parts. Explain the biology of annelids, citing their characteristics, diversity, habitat, and methods of feeding, reproduction, and locomotion. Explain the biology of arthropods, citing their characteristics, diversity, habitat, and methods of feeding, reproduction, and locomotion. Explain the biology of echinoderms, citing their characteristics, diversity, habitat, and methods of feeding, reproduction, and locomotion.</p>
<p>Module 5: Animals and Species Lesson 5.04: Fish and Amphibians</p>	<p>8.1.3 ;</p>	<p>Describe the characteristics of the chordates. Describe the external and internal structure of a fish, illustrate an example, and label its parts. Describe the structure of an amphibian, illustrate an example, and label its parts. Explain the biology of amphibians, citing their characteristics, taxonomy, examples, habitats, reproduction, and locomotion. Explain the biology of fish, citing their characteristics, taxonomy, key examples, habitats, and locomotion.</p>
<p>Module 5: Animals and Species Lesson 5.05: Amphibians</p>	<p>8.1.3 ;</p>	<p>Conduct research in order to compare and contrast the major physical structures, coloring, and habitat of various amphibians. Describe the structure of an amphibian, illustrate an example, and label its parts. Explain the biology of amphibians, citing their characteristics, taxonomy, examples, habitats,</p>

		reproduction, and locomotion.
Module 5: Animals and Species Lesson 5.06: Reptiles, Birds, and Mammals	8.1.3 ;	Compare and contrast endothermy and ectothermy and give animal examples of each. Explain the biology of birds, citing their characteristics, diversity, habitat, and methods of feeding, reproduction, and locomotion. Explain the biology of mammals, citing their characteristics, diversity, habitat, and methods of feeding, reproduction, and locomotion. Explain the biology of reptiles, citing their characteristics, diversity, habitat, and methods of feeding, reproduction, and locomotion. Interpret a phylogenetic tree of the animal kingdom, describing what it states about the evolution of animals.
Module 5: Animals and Species Lesson 5.07: The West Nile Virus	8.1.3 ;	Explain the biology of birds, citing their characteristics, diversity, habitat, and methods of feeding, reproduction, and locomotion. Explain the biology of mammals, citing their characteristics, diversity, habitat, and methods of feeding, reproduction, and locomotion. Research and explain the role that birds, reptiles, and mammals played in the transmission of West Nile virus.
Module 5: Animals and Species Lesson 5.08: Distinguishing Phyla	8.1.3 ;	Describe the characteristics of annelids, arthropods, and echinoderms and give examples of each. Describe the characteristics of chordates and recognize that vertebrates are one subphylum of chordates. Describe the characteristics of cnidarians, roundworms, and mollusks and give examples of each.
Module 5: Animals and Species Lesson 5.09: Comparison Within Species	8.1.3 ; 8.1.5 ;	Describe how internal characteristics of individuals may differ (fexample, size of bones, near-sightedness, blood type, resting heart rate). Recognize that members of a species may be diverse. Recognize that similarities among human beings make it possible fthem to donate organs blood to one another.
Module 5: Animals and Species Lesson 5.10: Characteristic Comparisons	8.1.3 ; 8.1.5 ;	Describe how internal characteristics of individuals may differ (fexample, size of bones, near-sightedness, blood type, resting heart rate). Explain through observation the differences in characteristics among individuals. Recognize that members of a species may be diverse.
Module 5: Animals and Species Lesson 5.11: Continuation of Species	8.1.2 ; 8.1.3 ;	Compare biological advantages and disadvantages of asexual and sexual reproduction. Describe the life cycle of asexual organisms. Explain how asexual organisms reproduce. Recognize that reproduction is essential fthe continuation of a species.

<p>Module 5: Animals and Species Lesson 5.12: Cells fReproduction</p>	<p>8.1.2 ;</p>	<p>Compare and contrast the structure and function of the sperm cell and egg cell in vertebrate animals and plants. Differentiate seeds and spores and their role in plant reproduction. Examine views of others and revise own views if warranted. Recognize that organisms that reproduce sexually have differentiated cells fthis purpose. Use technology to collaborate with peers by publishing writing which links and cites sources.</p>
<p>Module 5: Animals and Species Lesson 5.13: Sexual and Asexual Reproduction</p>	<p>8.1.2 ;</p>	<p>Examine and describe the reproductive structures of a plant. Examine views of others and revise own views if warranted. Use technology to collaborate with peers by publishing writing which links and cites sources.</p>
<p>Module 5: Animals and Species Lesson 5.14: Life Cycles</p>	<p>8.1.2 ; 8.1.3 ; 8.1.5 ;</p>	<p>Define the term life cycle. Describe the life cycle of invertebrates (fexample, contrast complete metamorphosis with incomplete metamorphosis of insects). Describe the life cycle of vertebrates (fexample, dog, bird, frog). Examine views of others and revise own views if warranted. Use technology to collaborate with peers by publishing writing which links and cites sources.</p>
<p>Module 5: Animals and Species Lesson 5.15: Combining Life Cycles</p>	<p>8.1.2 ; 8.1.3 ;</p>	<p>Describe the life cycle of invertebrates (fexample, contrast complete metamorphosis with incomplete metamorphosis of insects). Describe the life cycle of vertebrates (fexample, dog, bird, frog).</p>
<p>Module 5: Animals and Species Lesson 5.16: Module Review</p>	<p>8.1.5 ;</p>	
<p>Module 5: Animals and Species Lesson 5.16: Module Review (cont.)</p>		
<p>Module 5: Animals and Species Lesson 5.17: Module Exam</p>		
<p>Module 5: Animals and Species Lesson 5.17: Module Exam (cont.)</p>		
<p>Module 5: Animals and Species Lesson 5.18: Portfolio</p>		
<p>Module 5: Animals and Species Lesson 5.18: Portfolio (cont.)</p>		
<p>Module 5: Animals and Species Lesson 5.18: Portfolio (cont.)</p>		

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