

VECC
Eighth Grade Science Curriculum 2008
Life Science (Glencoe; 2008)

<p>Suggested Time Line How much time will be spent on this learning</p>	<p>Essential Questions and Content What will be taught?</p>	<p>NJCCC Standards What state standards will be met by these objectives?</p>	<p>Instructional Objectives What will the students know or be able to do as a result of this instruction?</p>	<p>Assessment What evidence will I collect that demonstrate that the students have achieved the objective?</p>	<p>Instructional Domain How will the learning be structured?</p>	<p>Instructional Activities What will the students do to achieve the objective?</p>
<p><u>Unit 1... 6 Chapters</u> <u>Life Structure & Function</u> (8 weeks)</p>	<p>What does the study of Life Science include?</p>	<p>5.1 A-1,2,3,4 B-1,2,3 C-1,2 5.2 A-1 B-1 D-1,2,3,4 5.4 A-1 5.5 A-1,2 B-1,3 C-1 5.6 A-1 B-1,2,4 5.10 B-1</p>		<ul style="list-style-type: none"> -Class discussions -Writing Assignments -Quizzes -Tests -Essays -Vocabulary -Projects -Comprehension questions -Hands On Lab Experiments - Written Lab Reports 	<ul style="list-style-type: none"> -Web Quests -Interactive student mapping on laptops - Class discussions -Independent student reading and writing assignments -Differentiated Instruction -Critical thinking - Standardized Test Prep 	<ul style="list-style-type: none"> -Read the text book (discuss, analyze and write about the material) -Participate in class discussions -Cooperative learning activities -Complete Web Quests -Answer comprehension questions -Supplemental Worksheets - Experiments
<p><u>Chapter 1</u> Exploring and Classifying Life</p>	<p>How do the structures within a cell work together to ensure the cell's survival?</p>		<p>Apply Scientific Methods to problem solving & demonstrate how to measure using scientific units.</p> <p>Distinguish between living</p>		<p>Activities</p> <ul style="list-style-type: none"> -Group classroom projects -Teacher made review questions 	<ul style="list-style-type: none"> -Complete workbook exercises -Paired Sharing -Guided Reading -Primary and Secondary sources -Graphic Organization

			<p>and nonliving things & identify needs for survival.</p> <p>Explain how scientific method led to the idea of biogenesis.</p> <p>Explain how similarities are used to classify organisms & demonstrate the use of a dichotomous key.</p>			
	What processes do cells undergo to ensure its survival and the survival of other organisms?					
Chapter 2..... Cells	What processes must occur to ensure the preservation of species and diversity of life?		Identify names and functions of each part of the cell and compare organization of tissues, organs & systems			
	How are organisms inherited traits determined?		Summarize the discoveries that led to the development of			

			the cell theory.			
	What methods have scientists used over time to determine the evolution of species?		Explain why viruses are not living things, but can affect all living things.			
Chapter 3..... Cell Processes			Discuss differences among atoms, elements, molecules, & compounds			
			Explain how the processes of diffusion & osmosis move molecules in cells Describe the processes of photosynthesis and cellular respiration			
Chapter 4 Cell Reproduction			Explain the steps of mitosis and examine why it is important			

			<p>Describe the stages of meiosis and how sex cells are produced</p> <p>Describe the structure and function of a DNA & an RNA molecule</p>			
<p>Chapter 5Heredity</p>			<p>Explain how traits are inherited and use a Punnett Square to predict the results of a cross</p> <p>Realize that interactions among alleles, genes, and the environment determine an organism's traits</p> <p>Evaluate the importance of advances in genetics and sequence the steps in making</p>			

			genetically engineered organisms.			
Chapter 6..... Adaptations over Time			.Describe Lamarck's hypothesis of acquired characteristics and Darwin's theory of natural selection Identify the importance of fossils as evidence of evolution and list 5 types of evidence. Describe the differences among living primates and identify the adaptations of primates.			
<u>Unit 2.....</u> <u>5 Chapters</u> <u>From Bacteria to Plants</u> (5 weeks)	What roles do bacteria serve in the environment?	5.1 A-1,2,3,4 B-1,2,3 C-1,2 5.2 A-1 B-1 D-1,2,3,4 5.4 A-1 5.5 A-1,2 B-1,3 C-1 5.6 A-1 B-1,2,4		Class discussions -Writing Assignments -Quizzes -Tests -Essays -Vocabulary	-Web Quests -Interactive student mapping on laptops - Class discussions -Independent student reading and writing assignments	-Read the text book (discuss, analyze and write about the material) -Participate in class discussions -Cooperative learning activities -Complete Web Quests -Answer comprehension

		5.10 B-1		<ul style="list-style-type: none"> -Projects -Comprehension questions -Hands On Lab Experiments - Written Lab Reports 	<ul style="list-style-type: none"> -Differentiated Instruction -Critical thinking - Standardized Test Prep 	<ul style="list-style-type: none"> questions -Supplemental Worksheets - Experiments
	How are protists and fungi able to contribute to the environments in which they live in?				<ul style="list-style-type: none"> Activities -Group classroom projects -Teacher made review questions 	<ul style="list-style-type: none"> -Complete workbook exercises -Paired Sharing -Guided Reading -Primary and Secondary sources -Graphic Organization
Chapter 7.... Bacteria	How does the diversity of plants allow them to provide humans and other organisms with food, shelter, and oxygen?		<ul style="list-style-type: none"> Identify the characteristics of bacteria cells and compare & contrast aerobic and anaerobic organisms. Identify ways that bacteria are helpful and explain how some bacteria can cause human disease 			
Chapter 8..... Protists and Fungi	What adaptations have plants developed over time that allows them to		Compare and contrast the 3 groups of protists and describe the characteristics			

	<p>reproduce in specific environments?</p>		<p>shared by the groups.</p> <p>Classify fungi into groups based on their methods of reproduction.</p> <p>Differentiate between the imperfect fungi and all other fungi.</p>			
<p>Chapter 9.... Plants</p>	<p>How are plant processes necessary for maintaining life on Earth?</p>		<p>Identify characteristics common to all plants and explain the adaptations that make it possible for plants to survive on land.</p> <p>Distinguish between characteristics of seedless nonvascular plants and seedless vascular plants & identify their</p>			

			<p>importance.</p> <p>Explain the structures and functions of roots, stems, and leaves.</p> <p>Describe the main characteristics of gymnosperms and angiosperms.</p> <p>Compare similarities and differences between monocots and dicots.</p>			
<p><u>Chapter 10.....</u> Plant Reproduction</p>			<p>Distinguish between the two types of plant reproduction and describe the two stages in a plant's life.</p> <p>Identify some special structures used by ferns for reproduction & examine their life cycle.</p>			

			Describe the structure and function of the flower			
			Discuss the methods of seed dispersal in seed plants.			
Chapter 11..... Plant Processes			Compare and contrast photosynthesis and cellular respiration and discuss why both are important.			
			Identify the relationship between a stimulus and a tropism in plants.			
			Explain how plant hormones and responses are related.			
<u>Unit 3...</u> <u>5 Chapters</u>	How does diversity in the Animal Kingdom attribute to the	5.1 A-1,2,3,4 B-1,2,3 C-1,2 5.2 A-1 B-1 D-1,2,3,4 5.4 A-1 5.5 A-1,2		Class discussions -Writing Assignments -Quizzes -Tests	-Web Quests -Interactive student mapping on laptops - Class discussions -Independent	-Read the text book (discuss, analyze and write about the material) -Participate in class discussions -Cooperative learning activities

<p><u>Animal Diversity</u> (10 weeks)</p>	<p>success of the each species?</p>	<p>B-1,3 C-1 5.6 A-1 B-1,2,4 5.10 B-1</p>		<ul style="list-style-type: none"> -Essays -Vocabulary -Projects -Comprehension questions -Hands On Lab Experiments - Written Lab Reports 	<p>student reading and writing assignments</p> <ul style="list-style-type: none"> -Differentiated Instruction -Critical thinking - Standardized Test Prep 	<ul style="list-style-type: none"> -Complete Web Quests -Answer comprehension questions -Supplemental Worksheets - Experiments
<p>Chapter 12..... Introduction to Animals</p>	<p>What classifies an organism as an invertebrate and which groups of animals fit into this classification?</p>		<p>Identify the characteristics common to most animals and determine how they meet their needs.</p> <p>Distinguish between invertebrates and vertebrates.</p> <p>Describe the characteristics of sponges and cnidarians & explain how they obtain their food & oxygen.</p> <p>List the characteristics of</p>		<p>Activities</p> <ul style="list-style-type: none"> -Group classroom projects -Teacher made review questions 	<ul style="list-style-type: none"> -Complete workbook exercises -Paired Sharing -Guided Reading -Primary and Secondary sources -Graphic Organization

			<p>flatworms & roundworms.</p> <p>Distinguish between free-living and parasitic organisms.</p>			
<p>Chapter 13..... Mollusks, Worms, Arthropods, Echinoderms</p>	<p>What classifies an organism as a vertebrate and which groups of animals fit into this classification?</p>		<p>Identify the characteristics of mollusks and describe the characteristics of each group & their members.</p> <p>Describe the structures of an earthworm and how it takes in food and oxygen.</p> <p>Determine the characteristics used to classify arthropods.</p> <p>Distinguish between complete and incomplete metamorphosis.</p>			

			List the characteristics of echinoderms & discuss their importances.			
Chapter 14.... Fish, Amphibians, and Reptiles	What are the characteristics of birds and mammals that lend to their diversity and success as a group?		Identify the characteristics shared by vertebrates. Differentiate between ectotherms and endotherms. List the 3 classes of fish and explain how they obtain food and oxygen. Describe the adaptations amphibians have for living in water and on land. Explain how amphibians reproduce and develop. Determine how			

			<p>reptile adaptations enable them to live on land.</p> <p>List the relationship between the forces that objects exert on each other.</p>			
<p>Chapter 15..... Birds and Mammals</p>	<p>How is animal behavior linked to the success of its survival?</p>		<p>Identify the characteristics of birds, the adaptations they have for flight, and how they reproduce and develop.</p> <p>Identify the characteristics of mammals and explain how they have enabled mammals to adapt to different environments</p> <p>Distinguish among</p>			

			monotremes, marsupials, and placentals.			
Chapter 16..... Animal Behavior			<p>Explain how some behaviors are inherited while others are learned.</p> <p>Explain why behavioral adaptations are important.</p> <p>Describe how courtship behavior increases reproductive success.</p> <p>Identify examples of imprinting and conditioning.</p>			
Unit 4... 7 Chapters Human Body Systems	How do bones, muscles, and skin give our bodies structure and enable us to move?	5.1 A-1,2,3,4 B-1,2,3 C-1,2 5.2 A-1 B-1 D-1,2,3,4 5.4 A-1 5.5 A-1,2 B-1,3 C-1 5.6 A-1 B-1,2,4 5.10 B-1		-Class discussions -Writing Assignments -Quizzes -Tests -Essays -Vocabulary -Projects	-Web Quests -Interactive student mapping on laptops - Class discussions -Independent student reading and writing assignments -Differentiated	-Read the text book (discuss, analyze and write about the material) -Participate in class discussions -Cooperative learning activities -Complete Web Quests -Answer comprehension questions

(11weeks)				-Comprehension questions -Hands On Lab Experiments - Written Lab Reports	Instruction -Critical thinking - Standardized Test Prep	-Supplemental Worksheets - Experiments
Chapter 17..... Structure And Movement	Do the structures and functions of the digestive system allow us to use the nutrients in food for our bodies?		Identify five functions of the skeletal system. Compare and contrast the 3 types of muscles and explain how muscle action results in the movement of body parts. Distinguish between the epidermis and dermis of the skin. Identify the skin's functions and explain how it protects the body from disease.			
Chapter 18.....	How does the circulatory system and the		Distinguish among the six classes of			

<p>Nutrients and Digestion</p>	<p>lymphatic system move materials to all cells?</p>		<p>nutrients and identify the importance of each nutrient.</p> <p>Identify the differences between mechanical and chemical digestion.</p> <p>Identify the organs of the digestive system and what takes place in each.</p> <p>Explain the importance of homeostasis in digestion.</p>			
<p>Chapter 19..... Circulation</p>	<p>What substances does the respiratory and excretory systems exchange during the process of waste removal from the cells?</p>		<p>Compare and contrast arteries, veins, and capillaries.</p> <p>Explain how blood moves through the heart.</p> <p>Identify the parts</p>			

			<p>and functions of the blood.</p> <p>Give examples of diseases of the blood.</p> <p>Identify where lymph comes from and how the organ help fight infections.</p> <p>Describe the functions of the lymphatic system.</p>			
<p>Chapter 20..... Respiration and Excretion</p>	<p>What body parts are able to control and coordinate all body functions in humans?</p>		<p>Describe the functions of the respiratory system & explain how smoking can damage the system.</p> <p>Explain how oxygen and carbon dioxide are exchanged in the lungs and tissues.</p> <p>Distinguish between the</p>			

			<p>excretory and urinary systems & describe the function of the kidneys.</p> <p>Explain what happens when urinary organs don't work properly.</p>			
<p>Chapter 21..... Control & Coordination</p>	<p>How does human reproduction and growth & development involve the interactions of all body systems?</p>		<p>Describe the basic structure of a neuron and how an impulse moves across a synapse.</p> <p>Compare the central and peripheral nervous systems.</p> <p>Explain how drugs affect the body.</p> <p>List the sensory receptors in each sense organ & explain what type of stimulus each sense organ</p>			

			<p>responds to and how.</p> <p>Explain why healthy senses are needed.</p>			
<p>Chapter 22..... Regulation and Reproduction</p>	<p>Infectious and noninfectious diseases are defended against by which of the body systems?</p>		<p>Define how hormones work & identify the different glands in which they are produced.</p> <p>Describe how a feedback system works in your body.</p> <p>Identify the function of the reproductive system.</p> <p>Compare and contrast the major structures of the male and female reproductive systems.</p> <p>Describe the fertilization of the</p>			

			<p>human egg.</p> <p>List and describe the developmental stages of infancy, childhood, adolescence, and adulthood.</p>			
<p>Chapter 23..... Immunity and Disease</p>			<p>Describe the natural defenses your body has against diseases.</p> <p>Explain the differences between an antigen and an antibody.</p> <p>Describe the work of famous scientists in the discovery and prevention of diseases.</p> <p>Explain how HIV affects the immune systems.</p> <p>List the sexually transmitted</p>			

			<p>diseases, their causes, and treatments.</p> <p>Define noninfectious diseases and list causes of them.</p> <p>Describe the basic characteristics of cancer.</p> <p>Explain what happens during an allergic reaction.</p>			
<p><u>Unit 5...</u> 4 Chapters</p> <p><u>Ecology</u> (6 weeks)</p>	<p>What are some ways that living organisms are able to react with their environment and with one another?</p>	<p>5.1 A-1,2,3,4 B-1,2,3 C-1,2 5.2 A-1 B-1 D-1,2,3,4 5.4 A-1 5.5 A-1,2 B-1,3 C-1 5.6 A-1 B-1,2,4 5.10 B-1</p>		<ul style="list-style-type: none"> -Class discussions -Writing Assignments -Quizzes -Tests -Essays -Vocabulary -Projects -Comprehension questions -Hands On Lab Experiments - Written Lab Reports 	<ul style="list-style-type: none"> -Web Quests -Interactive student mapping on laptops - Class discussions -Independent student reading and writing assignments -Differentiated Instruction -Critical thinking - Standardized Test Prep 	<ul style="list-style-type: none"> -Read the text book (discuss, analyze and write about the material) -Participate in class discussions -Cooperative learning activities -Complete Web Quests -Answer comprehension questions -Supplemental Worksheets - Experiments
	<p>What are the</p>				<p>Activities</p>	<p>-Complete workbook exercises</p>

	living and nonliving elements that make up environments?				-Group classroom projects -Teacher made review questions	-Paired Sharing -Guided Reading -Primary and Secondary sources -Graphic Organization
<u>Chapter 24.....</u> Interactions of Life	What are some of the diverse ecosystems found on both the lands and waters of the Earth?		Identify the places where life is found on Earth. Observe how the environment influences life. Explain how competition limits population growth & list the factors that influence changes in population size. Describe how organisms obtain energy for life. Recognize that every organism occupies a niche.			
<u>Chapter 25.....</u> The Nonliving	Why are so many of the Earth's		Identify common abiotic factors in most ecosystems			

<p>Environment</p>	<p>resources limited and what conservation efforts are being made to preserve them?</p>		<p>and needed for life.list the components</p> <p>Explain how climate influences life in an ecosystem.</p> <p>Diagram the carbon cycle and recognize the role of nitrogen in life on Earth.</p> <p>Explain how organisms produce energy-rich compounds.</p> <p>Recognize how much energy is available at different levels in a food chain.</p>			
<p><u>Chapter 26.....</u> Ecosystems</p>			<p>Explain how ecosystems change over time & describe how new communities begin in areas without life.</p>			

			<p>Compare pioneer species and climax communities.</p> <p>Identify 7 biomes on Earth and describe the adaptations of organisms found in each biome.</p> <p>Compare flowing freshwater and standing freshwater ecosystems</p> <p>Identify problems that affect aquatic ecosystems.</p>			
<p><u>Chapter 27.....</u> Conserving Resources</p>			<p>Compare renewable and nonrenewable resources.</p> <p>List uses of fossil fuels and identify alternatives.</p> <p>Describe types of</p>			

			<p>pollution and their causes.</p> <p>Explain methods that can be used to prevent erosion.</p> <p>Recognize ways you can reduce use of natural resources and how you can promote conservation.</p> <p>Describe how materials can be recycled.</p>			

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