

MONTH	CONTENT/ESSENTIAL QUESTION	NYS STANDARD/ KEY IDEA/ PERFORMANCE INDICATORS	LAB THEMES	SKILLS	ASSESSMENTS
SEPTEMBER	<b>UNIT ONE: SCIENTIFIC METHOD AND SKILLS</b>				
	What is life science?	<i>Key Idea 1 Performance Indicators</i> 1.1a-c; 1.2 a-b; 1.3a-b; 1.4a	Lab: What skills do scientists use?	*Explain the goal of science *Define/explain the scientific process skills: inquiry, reasoning, inferring, observing, graphing	Lab Write Ups Textbook Homework Vocabulary Homework
	How will we explore life science?		Lab: "Science in the News"		Science in the News Homework
	What is the "Who, What, Why, and How" of Science?	<i>Key Idea 2 Performance Indicators</i> 2.1; 2.2d; 2.3a-c	Lab: Review of Science Lab Safety	*Review safety procedures in lab and class	Science Literacy Assignments
	What skills do life scientists use?	<i>Key Idea 3 Performance Indicators</i> 3.1; 3.2; 3.3; 3.4; 3.5; 4.1; 4.2; 4.3; 4.4	Lab: How do we read a science textbook?	*Review life science lab equipment and use appropriate equipment safely	Class Participation Living Environment Regents based exams
	How can we explore science through "Science in the News"?		Lab: Identifying Laboratory Equipment	*Identify/apply steps in the Scientific Method	
	How do we stay safe in the science lab?	<i>Common Core Literacy Key Ideas</i> Reading 1-10 Writing 1-10	Lab: Applying the Scientific Method	*Design an investigation to test a hypothesis *Collect and Interpret data *Review and analyze historical investigations	
	How do we use textbooks as a learning tool?				
	What tools do biologists use?				
	How do scientists solve problems?				
What is the Scientific Method?					

	<p>Where does life come from?</p> <p>How was the <i>Theory of Spontaneous Generation</i> disproved?</p>				
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	<p><b>UNIT TWO: NEEDS OF LIVING ORGANISMS</b></p> <p><i>Topic 1 Properties of Living Organisms</i></p> <p>What are the characteristics of living organisms?</p> <p>What are the needs of living organisms?</p> <p>What life functions do living organisms perform?</p> <p>What is the basic unit of life?</p> <p>What is the Cell Theory?</p>	<p><i>Standard 4</i> <i>Key Idea 1</i> <i>Performance Indicators</i> 1.1a-e</p> <p><i>Common Core Literacy</i> <i>Key Ideas</i> Reading 1-10 Writing 1-10</p>	<p>Lab: Competition for Living Space Who Will Survive?</p>	<p>*Define the concept of life</p> <p>*Identify essential characteristics of all living organisms</p> <p>*Identify essential needs of all living organisms</p> <p>*Identify essential life functions of all living organisms</p> <p>*Define cell *Explain the Cell Theory</p>	<p>Lab Write Ups</p> <p>Textbook Homework</p> <p>Vocabulary Homework</p> <p>“Science in the News”</p> <p>Science Literacy Assignments</p> <p>Classroom Participation</p> <p>Living Environment Regents based class exams</p>

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<div style="border: 1px solid black; padding: 10px; width: 60px; margin: auto;">OCTOBER</div>	<p><b>Topic 2</b> <b>Microscopes</b></p> <p>What is the history of the microscope?</p> <p>What are the structures and functions of the compound light microscope?</p> <p>How do we diagram what we observe under the compound light microscope?</p> <p>How do we use the compound light microscope to view microscopic organisms?</p>	<p><i>Standard 4</i> <i>Process Skills</i> <i>Living Environment Skills 1-4</i></p> <p><i>Performance Indicators</i> S2.1a; 2.1d; S4.1; 4.2; 4.3; 4.4</p> <p><i>Common Core Literacy Key Ideas</i> Reading 1-10 Writing 1-10</p>	<p>Lab Skill: Diagramming</p> <p>Lab: The Microscope: A Tool of the Biologists</p> <p>Lab: Using the Compound Light Microscope</p> <p>Lab: Using the Microscope</p>	<p>*Explain history of microscope</p> <p>*Identify science of lenses</p> <p>*Identify different microscopes</p> <p>*Identify structures and functions of compound light microscopes</p> <p>*Use microscope to locate specimens under low/ high power</p> <p>*Prepare a wet mount slide</p> <p>*Determine the size of microscopic objects</p> <p>*Differentiate between different types of cells</p> <p>*Diagram observations made using compound light microscope</p>	<p>Lab Write Ups</p> <p>Textbook Homework</p> <p>Vocabulary Homework</p> <p>Science in the News</p> <p>Science Literacy Assignments</p> <p>Class Participation</p> <p>Living Environment Regents based class exams</p>

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	<p><i>Topic 3 Cell Structures and Functions</i></p> <p>What are main cell parts?            What are ancillary cell parts?            Why do cells have different shapes?            How do we prepare, stain, and view animal cells?            How do plant and animal cells differ?            How do we differentiate between cell organelles and their functions?            How do materials move across cell membranes?            What is osmosis?            How do cells obtain energy?            What is photosynthesis?</p>	<p><i>Standard 4 Living Environment</i>  <i>Key Idea 1</i>  <i>Performance Indicators</i>            1.1a-d</p> <p><i>Common Core Literacy</i>  <i>Key Ideas</i>            Reading 1-10            Writing 1-10</p>	<p>Lab: Observing Animal Cells</p> <p>Lab: Observing Plant Cells</p> <p>Lab: Constructing Animal Cell Models</p> <p>Lab Demo: Movement Across Membranes</p> <p>Lab: Osmosis in Elodea Cells</p> <p>Lab: Identifying Pigments in leaves</p> <p>Lab Demo: Cellular Respiration</p>	<p>*Differentiate between animal and plant cells            *Explain structure and function of cell membrane, cytoplasm, nucleus, nuclear membrane, nucleolus, er, ribosomes, golgi bodies, centrioles, vacuoles, mitochondria, chloroplasts, cell wall, lysosomes            *Differentiate between cell wall and cell membrane            *Differentiate between active transport/passive transport            *Differentiate between photosynthesis and cellular respiration            *Create cell models</p>	<p>Lab Write Ups</p> <p>Textbook Homework</p> <p>Vocabulary Homework</p> <p>Science in the News</p> <p>Science Literacy Homework</p> <p>Class Participation</p> <p>Living Environment Regents based exams</p>

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<div style="border: 1px solid black; padding: 10px; display: inline-block; transform: rotate(-90deg); transform-origin: center;">           NOVEMBER         </div>	<p><b>UNIT THREE: HEREDITY AND GENETICS</b></p> <p><i>Topic 1 DNA &amp; Chromosomes</i></p> <p>Who were Crick and Watson?</p> <p>What is DNA</p> <p>What is the structure and function of chromosomes?</p> <p>How do cells produce more cells?</p> <p><i>Topic 2 Genetics and Heredity</i></p> <p>What is Heredity? How are traits inherited? How is gender determined? What are some inherited diseases?</p>	<p><i>Standard 4 Living Environment</i> <i>Key idea 2 Performance Indicators</i> 1.1c; 1.1e; 1.2g; 2.1a-1</p> <p><i>Common Core Literacy</i> <i>Key Ideas</i> Reading 1-10 Writing 1-10</p>	<p><b>Scientist Research Project</b></p> <p>Lab Demo: Strawberry DNA Extraction</p> <p>Lab: Solving Heredity Problems</p>	<ul style="list-style-type: none"> <li>*Explain major functions of the nucleus</li> <li>*Explain DNA structure/function</li> <li>*Explain cell cycle events</li> <li>*Identify relationship between DNA, chromosomes, genes</li> <li>*Differentiate between heredity and genetics</li> <li>*Analyze genetic inheritance and calculate probability</li> <li>*Explain human karyotypes</li> <li>*Differentiate between body and cells and gametes</li> <li>*Contrast mitosis and meiosis</li> <li>*Explain how gender is determined</li> <li>*Differentiate between inherited and non inherited diseases</li> <li>*Analyze pedigree charts and human genetic disorders</li> </ul>	<p>Lab Write Ups</p> <p>Textbook Homework</p> <p>Vocabulary Homework</p> <p>Science in the News</p> <p>Science Literacy Assignments</p> <p>Class Participation</p> <p>Living Environment Regents</p> <p>Based class exams</p>



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<div style="border: 1px solid black; padding: 10px; display: inline-block;"> <b>DECEMBER</b> </div>	<p><b>UNIT FOUR: CLASSIFICATION</b></p> <p>What is taxonomy?</p> <p>How are living organisms classified?</p> <p>What are the characteristics of the 6 kingdoms</p>	<p><i>Standard 4 Living Environment Key Idea 1</i></p> <p><i>Performance Indicators 1.1a</i></p> <p><i>Common Core Literacy Key Ideas Reading 1-10 Writing 1-10</i></p>	<p>Lab: Using a Dichotomous Key</p>	<p>*Understand the concept of classification of living organisms</p> <p>*Define taxonomy</p> <p>*Use a Dichotomous Key</p> <p>*Construct a Dichotomous Key</p> <p>*Identify the 6 Kingdoms</p> <p>*Differentiate between the general characteristics of each kingdom</p>	<p>Lab Write Ups</p> <p>Textbook Homework</p> <p>Vocabulary Homework</p> <p>Science in the News</p> <p>Science Literacy Assignments</p> <p>Class Participation</p> <p>Living Environment Regents</p> <p>Based class exams</p>

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<div style="border: 1px solid black; padding: 10px; width: 80px; margin: 0 auto;"> <p style="margin: 0;">JANUARY</p> </div>	<p><b>Topic 1 Viruses</b></p> <p>What is the structure and function of a virus? How do we classify viruses? How do viruses cause illness?</p> <p><b>Topic 2 Bacteria</b></p> <p>What are the kingdoms Eubacteria and Archaeobacteria?  What are the characteristics of Eubacteria?  How do bacteria reproduce?</p> <p><b>Topic 3 Immunity</b></p> <p>What is disease? What are the types of disease?</p>	<p><i>Standard 4 Living Environment Performance Indicators</i> 1.2g; 2.1s-t; 2.1 u; 2.1v; 2.1 w; 5.2a-j</p> <p><i>Common Core Literacy Key Ideas</i> Reading 1-10 Writing 1-10</p>	<p>Lab: Spread of a Disease: Will You Survive?</p> <p><b>PROJECT VIRUS BROCHURE</b></p> <p>Lab: Classifying Bacteria</p> <p>Lab: Identifying Bacteria and How They Grow</p>	<p>*Identifying structure/function of a virus *Differentiate between DNA and Retro Viruses *Identify “virus” as disease causing agent *Differentiate between Lytic/ Lysogenic Reproductive Cycles *Explain methods of viral treatment *Explain connection between vaccines and Immune Response</p> <p>*Identify structure and function of bacteria</p> <p>*Differentiate between nonliving viruses and living bacteria</p>	<p>Lab Write Ups</p> <p>Textbook Homework</p> <p>Vocabulary Homework</p> <p>Science in the News</p> <p>Science Literacy Assignments</p> <p>Scientist Research Project</p> <p>Virus Brochure Project</p> <p>Class Participation</p> <p>Living Environment Regents based class exams</p>

	<p>How does the human body fight disease?</p> <p>How do we prevent infectious diseases from spreading?</p>			<ul style="list-style-type: none"><li>*Explain how bacteria reproduce</li><li>*Identify benefits of bacteria</li> <li>*Identify disease causing bacteria</li> <li>*Identify beneficial bacteria</li> <li>*Explain use of antibiotics in treatment of bacterial disease</li> <li>*Identify disease as failure to maintain homeostasis</li> <li>*Identify causes of disease</li> <li>*Explain disease transmission, prevention, and treatment</li> <li>*Identify structures of the Immune System</li></ul>	
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FEBRUARY

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	<p><b>UNIT FIVE: HUMAN BODY SYSTEMS</b></p> <p><i>Topic 1 Body Organization and Structure</i></p> <p>How do cells work together to form tissues?</p> <p>What are organs and organ systems?</p> <p><i>Topic 2 Skeletal and Muscular Systems</i></p> <p>What are the structures and functions of the skeletal systems?</p> <p>What are the structures and functions of the muscular system?</p> <p>What are different types of muscles?</p> <p>How do bones and muscles work together to provide support and movement?</p> <p>What is skin?</p>	<p><i>Standard 4 Living Environment Key Idea 1 Performance Indicator 1.2a-f</i></p> <p><i>Common Core Literacy Key Ideas Reading 1-10 Writing 1-10</i></p>	<p>Lab: Investigating Tissues</p> <p>Lab: Examining Bones and Joints</p> <p>Lab: Comparing ones, Joints, and Muscles</p>	<p>*Differentiate between cells, tissues, organs, organ systems</p> <p>*Explain how the human body is organized</p> <p>*Identify the different human body organ systems and their functions</p> <p>*Define the function of the skeletal system</p> <p>*Identify the structures of the skeletal system</p> <p>*Define the function of the muscular system</p> <p>*Identify the structures and functions of the different types of muscle</p> <p>Define the functions of the integumentary system</p> <p>*Describe the function of skin, hair, and nails</p>	<p>Lab Write Ups</p> <p>Textbook Homework</p> <p>Vocabulary Homework</p> <p>Science in the News</p> <p>Science Literacy Assignments</p> <p>Class Participation</p> <p>Living Environment Regents</p> <p>Based exams</p>



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<div style="border: 1px solid black; padding: 10px; width: 50px; margin: auto;">MARCH</div>	<p><b>Topic 3 Circulation and Respiration</b></p> <p>What are the structures and functions of the circulatory system?</p> <p>What happens to blood as it circulates?</p> <p>What are the structures and functions of the respiratory systems?</p> <p>What are the mechanics of breathing?</p> <p><b>Topic 4 Digestion and Excretion</b></p> <p>What are the structures and functions of the digestive systems?</p> <p>What are the structures and functions of the excretory systems?</p>	<p><i>Standard 4 Living Environment Key Idea 1 Performance Indicators 1.2a-j</i></p> <p><i>Common Core Literacy Key Ideas Reading 1-10 Writing 1-10</i></p>	<p>Lab: Observing Blood Circulation</p> <p>Lab: Investigating Breathing and Respiration</p> <p>Lab: Investigating Digestion</p>	<p>*Define the function of the human circulatory system</p> <p>*Name 3 types of blood vessels</p> <p>*Describe blood functions</p> <p>*Describe pathway of blood through human body</p> <p>*Define the function of the human respiratory system</p> <p>*Identify the structures of the respiratory system/gas exchange</p> <p>*Explain the mechanics of breathing</p> <p>*Explain how the respiratory system and circulatory system work together to maintain</p>	<p>Lab Write Ups</p> <p>Textbook Homework</p> <p>Vocabulary Homework</p> <p>Science in the News</p> <p>Science Literacy Assignments</p> <p>Class Participation</p> <p>Living Environment Regents based exams</p>

				<p>homeostasis</p> <ul style="list-style-type: none"><li>*Define the function of the human digestive system</li><li>*Identify the structures/functions of the digestive system</li><li>*Describe the pathway food takes through the digestive system</li><li>*Explain how nutrients are absorbed</li><li>*Define the function of the human excretory system</li><li>*Identify organ structure and function of the excretory systems</li></ul>	
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<div style="border: 1px solid black; padding: 10px; width: 60px; margin: 0 auto;">APRIL</div>	<p><i>Topic 5 Communication and Regulation</i></p> <p>What are the structures/ functions of the Nervous System?</p> <p>What are sense organs?</p> <p>How does the human body respond to stimuli?</p> <p><b>UNIT SIX: PLANTS</b></p> <p>What are the characteristics and functions of the kingdom Plantae?</p> <p>What are the characteristics of seedless plants?</p> <p>What are the characteristics of seeded plants?</p> <p>What are the structure and function of roots?</p> <p>What are the structure and function of leaves?</p>	<p><i>Standard 4 Living Environment</i> <i>Key Idea 1</i> <i>Performance Indicators</i> 1.1a-h; 1.2 a-f</p> <p><i>Key Idea 5</i> <i>Performance Indicators</i> 5.1a-d</p> <p><i>Key Idea 6</i> <i>Performance Indicators</i> 6.2a-c</p> <p><i>Common Core Literacy Key Ideas</i> Reading 1-10 Writing 1-10</p>	<p>Lab: Observing Human Reflexes</p> <p><b>PROJECT: EARTH DAY</b></p> <p>Lab: Identifying Root Structures</p> <p>Lab: Identifying Leaf Structures</p>	<p>*Define the function of the Central Nervous System</p> <p>*Identify the structures of the Nervous System</p> <p>*Describe how a nerve impulse is transmitted</p> <p>*Identify the five senses</p> <p>*Identify structure and function of roots</p> <p>*Identify structure and function of stems</p> <p>*Identify structure and function of leaves</p> <p>*Differentiate between seeded and seedless plants</p> <p>*Identify flower reproductive</p>	<p>Lab Write Ups</p> <p>Textbook Homework</p> <p>Vocabulary Homework</p> <p>Science in the News</p> <p>Science Literacy Assignments</p> <p>Class Participation</p> <p>Earth Day Project</p> <p>Living Environment Regents based exams</p>

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<b>MAY</b>	<p>What are the structures and functions of stems?</p> <p>What are the structures and functions of flowers?</p> <p>How do plants reproduce?</p> <p><b>UNIT SEVEN ECOLOGY</b></p> <p><i>Topic 1 Interactions of Living Things</i></p> <p>What is ecology?</p> <p><i>Topic 2 The Earth's Ecosystems</i></p> <p>What is an ecosystem?</p> <p>What are biomes, habitats, and niches?</p> <p>What are limiting factors?</p> <p><i>Topic 3 Cycles in Nature</i></p> <p>What are producers and</p>	<p><i>Standard 4 Living Environment</i> <i>Key Idea 1</i> <i>Performance Indicator</i> 1.1e-g</p> <p><i>Key Idea 7</i> <i>Performance Indicators</i> 7.1a-e 7.2 a-d</p> <p><i>Standard 4 Life Science</i> <i>Key Idea 1</i> <i>Performance Indicators</i> 1.1a-f</p> <p><i>Common Core Literacy Key Ideas</i> Reading 1-10 Writing 1-10</p>	<p>Lab: Identifying Stem Structures</p> <p>Lab: Identifying Reproductive Structures in Flowering Plants</p> <p><b>BIOME CUBE PROJECT</b></p>	<p>*Identify structure/function of stems</p> <p>*Identify structure and function of flowers</p> <p>*Differentiate between pollen and eggs</p> <p>*Explain reproductive cycle of flowering plants</p> <p>*Explain importance of animals for plant reproduction</p> <p>*Define ecology</p> <p>*Understand relationships between living and non living</p> <p>*Define and identify biome, ecosystem, habitat, niche,</p> <p>*Differentiate between biotic and abiotic factors</p> <p>*Identify Limiting</p>	<p>Lab Write Ups</p> <p>Textbook Homework</p> <p>Vocabulary Homework</p> <p>Science in the News</p> <p>Science Literacy Assignments</p> <p>Class Participation</p> <p>Biome Cube Project</p> <p>Living Environment Regents Based exams</p>

	<p>consumers?</p> <p>What are food chains, webs, and pyramids?</p> <p>What is balance in ecosystems?</p>			<p>Factors</p> <ul style="list-style-type: none"><li>*Evaluate how humans affect ecosystem</li><li>*Identify predator/prey relationship</li><li>*Define producer and consumer</li><li>*Differentiate between food chains, food webs, food pyramids</li></ul>	
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<div style="border: 1px solid black; padding: 10px; width: 50px; margin: 0 auto;"> <b>JUNE</b> </div>	<p><b>ENRICHMENT</b></p> <p>What is the purpose of dissection?</p> <p>What tools and procedures are used in specimen dissection?</p> <p>What are the internal and external structures of mollusks?</p> <p>What are the internal and external structures of frogs?</p> <p><b>FINAL EXAM REVIEW</b></p>	<p><i>Standard 4 Living Environment</i> <i>Key Idea 1</i> <i>Performance Indicators</i> 1.2 a-j</p> <p><i>Common Core Literacy Key Ideas</i> Reading 1-10 Writing</p>	<p>Lab: What are the external and internal structures of squid?</p> <p>Lab: What are the external and internal structures of frogs?</p>	<p>*Review purpose of dissection process</p> <p>*Identify Dissection tools and procedures</p> <p>*Review Safety</p> <p>*Identify internal and external structures of squid and frog</p> <p>*Compare/contrast frog and human organ and organ systems</p> <p><b>REVIEW major instructional topics and vocabulary</b></p>	<p>Lab Write ups</p> <p>Vocabulary Review</p> <p>Content Review</p> <p><b>FINAL EXAMINATION</b></p>