

**Biology: The Living Environment Curriculum Map**

Based on

NY State Core Curriculum: The Living Environment

MONTH	CONTENT	NYS STANDARD/KEY IDEA/PERFORMANCE INDICATOR	LAB THEMES	SKILLS	ASSESSMENTS
<b>September</b>	<p><b>Science and Biology</b></p> <ul style="list-style-type: none"> <li>-What is Science</li> <li>-How Scientists Work</li> <li>-Studying Life</li> <li>-Tools and Procedures</li> </ul> <p><b>Chemistry of Life</b></p> <ul style="list-style-type: none"> <li>- The Chemistry of Life</li> <li>- Properties of water</li> <li>- Carbon Compounds</li> <li>- Chemical Reactions and enzymes</li> </ul>	<p>1.1.1a-b, 1.1.3 a-b, 1.2.3a-b, 1.3.4a-5a; 1.1.4a;4.2.1de4.3.1a;4.5.1a;1.3.1a</p> <p>4.2.1i, 4.5.1a, 4.5.1c, 4.5.1f, 4.5.1g</p>	<p>Scientific Method-Making Connections*</p> <p>Safety in the Lab</p> <p>Measurement (metric System)</p> <p>Chemistry</p> <ul style="list-style-type: none"> <li>-Properties of water</li> <li>-pH</li> <li>-Discovering where proteins are found</li> </ul>	<p>Use the microscope to locate specimens under low and high power</p> <p>Prepare a wet mount slide</p> <p>Make an appropriate scale and plot data points from a data table</p> <p>Interpret graphs</p> <p>Identify biochemical structures</p> <p>Understand differences between acids and bases</p> <p>Design an experiment to test a hypothesis</p> <p>Measure in metric units</p>	<p>Written assessment which encompasses problem solving, comprehension, synthesis and evaluation of performance.</p> <p>Evaluation of lab write ups.</p> <p>Chapter 1 Exam</p> <p>Chapter 2 Exam</p> <p>Homework - Section assessments</p> <p>Quizzes- Min 2 per chapter</p> <p>Review</p> <p>Worksheets</p> <p>Castle Learning - The Science of Biology</p>

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<h1 style="writing-mode: vertical-rl; transform: rotate(180deg);">October</h1>	<p><b>Cell Structure and Function</b></p> <ul style="list-style-type: none"> <li>- Life is Cellular</li> <li>- Eukaryotic Cell Structure</li> <li>- Cell Boundaries</li> <li>- Diversity of Cellular Life</li> </ul> <p><b>Photosynthesis/Cellular Respiration</b></p> <ul style="list-style-type: none"> <li>- Energy and life</li> <li>- Photosynthesis</li> <li>- Chemical Pathways</li> <li>- Electron transport</li> </ul> <p><b>Chapter 10 Cell Growth and Divisions</b></p> <ul style="list-style-type: none"> <li>- Cell Growth</li> <li>- Cell Division</li> <li>- Regulating the Cell Cycle</li> </ul>	<p>4.1.2a, 4.1.2e-I, 4.1.3a</p> <p>4.5.1a-e, 4.6.1a</p> <p>4.2.1 a-g, 4.2.1 I, 4.3.1 d, 4.4.1 b, 4.4.1 d, 4.5.2 i, 4.5.2 j</p>	<p>Cell Microscopy</p> <p>Osmosis Diffusion*</p> <p>Photosynthesis/Respiration</p> <p>Mitosis</p> <p>*required state lab</p>	<p>Distinguish difference between plant and animal cells, cell parts</p> <p>Test with chemical Indicators for starch/glucose</p> <p>Gather data and form conclusions</p> <p>Identify different mitotic phases</p>	<p>Written assessment which encompasses problem solving, comprehension, synthesis and evaluation of performance.</p> <p>Evaluation of lab write ups.</p> <p>Exams with regents questions</p> <ul style="list-style-type: none"> <li>- Chapter 7 Exam</li> <li>- Chapter 8/9 Exam</li> </ul> <p>Chapter 10 Exam</p> <p>Chapter section Assessments</p> <p>Quizzes - Multiple choice and cell labeling</p> <p>Review Worksheets</p> <p>Castle Learning - cells</p>

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<b>November</b>	<p>Intro to Genetics</p> <ul style="list-style-type: none"> <li>- The Work of Gregor Mendel</li> <li>- Probability and Punnett Squares</li> <li>- Exploring Mendelian Genetics</li> <li>- Meiosis</li> <li>- Linkage and Gene Maps</li> </ul>	4.2.1e, 4.3.1c, 4.4.1c	<p>Exploring human traits</p> <p>Punnett Squares</p> <p>Solving Heredity Problems</p> <p>Modeling Meiosis</p> <p>Creating Gene Maps</p> <p>Segregation of Alleles in gametes</p>	<p>Summarize Mendel's conclusion about inheritance</p> <p>Explain how Geneticists use the principles of Probability</p> <p>Create Punnett Squares to illustrate inheritance</p> <p>Describe the other inheritance patterns aside from simple dominance</p> <p>Contrast Meiosis and Mitosis</p> <p>Explain how gene maps are produced</p>	<p>Written assessment which encompasses problem solving, comprehension, synthesis and evaluation of performance.</p> <p>Evaluation of lab write ups.</p> <p>Punnett Square Practice Packet</p> <p>Quizzes and Tests</p> <p>Homework - Section Assessments</p> <p>Review Worksheets - 11-1, 11-2, 11-3, 11-4, 11-5</p> <p>Castle Learning - Quarter Review and Assessment</p>

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<b>December</b>	<p>Human Reproduction and Development</p> <ul style="list-style-type: none"> <li>- The Reproductive System</li> <li>- Fertilization and development</li> <li>- Zygote formation</li> <li>- Growth and differentiation</li> <li>- Placenta</li> <li>- Pre-natal Care</li> </ul>	<p>4.1.2j, 4.4.1a, 4.4.1c-h, 45.5.2a, 4.5.3a-b, 4.5.1 g</p>	<p>Segregation of Alleles during gamete formation</p> <p>Observing gametes under the microscope</p> <p>Embryo Development</p>	<p>Explain the roles of the male and female reproductive systems</p> <p>Describe sexual development</p> <p>Identify the stages of the menstrual cycle</p> <p>Describe fertilization</p> <p>Explain the function of the placenta</p> <p>Outline the life cycle after birth</p>	<p>Written assessment which encompasses problem solving, comprehension, synthesis and evaluation of performance.</p> <p>Evaluation of lab write ups.</p> <p>Exams with regents questions - Chapter 11/Reproduction Exam</p> <p>Homework - Practice Regents Questions</p> <p>- Holiday Review Assignment</p>

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<b>January</b>	<p><b>DNA / RNA</b></p> <ul style="list-style-type: none"> <li>- DNA</li> <li>- Chromosomes and DNA Replication</li> <li>- RNA and Protein Synthesis</li> <li>- Mutations</li> <li>- Gene Regulation</li> </ul> <p><b>Genetic Engineering</b></p> <ul style="list-style-type: none"> <li>- Selective Breeding</li> <li>- Manipulating DNA</li> <li>- Transformation</li> <li>- Genetic Engineering Application</li> </ul> <p><b>The Human Genome</b></p> <ul style="list-style-type: none"> <li>- Karyotypes</li> <li>- Genetic Disorders</li> <li>- Chromosomal Disorders</li> <li>- Human Genetics</li> </ul>	<p>4.1.2i 4.2.1f-I 4.2.2c, 4.3.1d, 4.5.1c 4.5.1g</p> <p>4.2.2a-e, 4.3.1b, 4.3.1d</p> <p>4.2.1e, 4.2.1i , 4.2.1j, 4.2.2e, 4.5.2h</p>	<p>DNA / RNA Replication Transcription Translation</p> <p>Biodiversity*</p> <p>Genetic Engineering</p> <p>Human Genetics</p> <p>*required state lab</p>	<p>Transcribe/translate DNA to a protein</p> <p>Compare/contrast plant specimens Compare/contrast DNA and proteins Analyze and evaluate experimental data</p> <p>Research current information</p> <p>Analyze pedigrees and human genetic disorders</p>	<p>Written assessment which encompasses problem solving, comprehension , synthesis and evaluation of performance.</p> <p>Evaluation of lab write ups.</p> <p>Exams - Chapters 12, 13, 14.</p> <p>Homework- Section Reviews Regents Packets</p> <p>Quizzes - 2 per Chapter</p> <p>Midterm Review- Bio Jeopardy Midterm Castle Learning Midterm Exam</p>



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<b>March</b>	<p><b>Nervous System</b></p> <ul style="list-style-type: none"> <li>- Divisions of the Nervous System</li> <li>- Structure and function of Neurotransmitters</li> <li>- The Senses</li> <li>- Drugs and the Nervous System</li> </ul> <p><b>Skeletal, Muscular, Integumentary, Circulatory, Respiratory System</b></p> <ul style="list-style-type: none"> <li>- Skeletal Structure</li> <li>- Types of Muscle Tissue</li> <li>- Heart and Blood Vessels</li> <li>- Gas Exchange</li> <li>- Disease</li> </ul>	<p>4.1.2a-e, 4.1.2j, 4.4.1h, 4.5.3a, 4.5.2h</p> <p>4.1.2b, 4.5.2d, 4.5.2h, 4.5.2j, 4.5.3b</p>	<p>Senses</p> <p>Human Reaction Time</p> <p>Circulatory/Respiratory</p> <p>Heart rate vs. exercise</p>	<p>Describe how a nerve impulse is transmitted</p> <p>Understand sensory pathways</p> <p>Understand relationship between exercise and body systems</p> <p>Explain how muscles and bones interact</p> <p>Describe the structure and function of the Circulatory and Respiratory systems</p>	<p>Written assessment which encompasses problem solving, comprehension, synthesis and evaluation of performance.</p> <p>Evaluation of lab write ups.</p> <p>Chapter Exams</p> <p>Quizzes- 1 per body System</p> <p>Review Worksheets</p> <ul style="list-style-type: none"> <li>- Anatomy and Physiology</li> </ul> <p>Castle Learning</p> <ul style="list-style-type: none"> <li>- Homeostasis</li> </ul>

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<b>April</b>	<b>Digestive/Excretory System</b> <ul style="list-style-type: none"> <li>- Food/Nutrition</li> <li>- Process of Digestion</li> <li>- Excretion</li> <li>- Structure/function of the Kidneys</li> </ul>	4.1.2d, 4.5.1c, 4.5.1f, 4.5.2a, 4.5.3b	Food Analysis Dissection	Collecting Data Interpret results using indicators Identify major digestive organs and function	Written assessment which encompasses problem solving, comprehension, synthesis and evaluation of performance.
	<b>Endocrine</b> <ul style="list-style-type: none"> <li>- Glands</li> <li>- Hormones</li> <li>- Receptors</li> </ul>	4.1.2 j, 4.4.1 a, 4.4.1 c-h, 4.5.2 a, 4.5.3 a-b, 4.5.1 g	Structure and function of Hormones and receptors	Use metric measurement  Plot measurements on graph	Evaluation of lab write ups.  Exam -Body Systems and Homeostasis
	<b>Immune System and Disease</b> <ul style="list-style-type: none"> <li>- Causes of Disease</li> <li>- Pathogens</li> <li>- Response to infections</li> <li>- Vaccines</li> <li>- Allergies</li> <li>- HIV/AIDS</li> </ul>	4.5.1g, 4.5.2a-j	Antigen/antibody reactions  Spread of Disease	Understand relationships between antigens and antibodies  Understand body's response to disease	Quizzes- 1 per body System  Spread of Disease Activity



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<b>May</b>	<b>The Biosphere</b> - Interactions and interdependence -Levels of Organization - Energy Flow - Cycles of Matter	1.1.1a, 4.1.1a-b, 4.1.1d, 4.1.1f, 4.6.1a, 4.6.1c, 4.6.1d, 4.6.1g	Food Webs/Food Chains	Interpret Graphs and tables	Written assessment which encompasses problem solving, comprehension, synthesis and evaluation of performance.
	<b>Ecosystems/Community</b> - Role of Climate - Biotic and Abiotic Factors - Ecological Succession - Biomes	4.1.1a-c, 4.6.1a, 4.6.1e, 4.6.1g, 4.6.3b	Predator/Prey relationships	Understand relationships between organisms	Evaluation of lab write ups.  Ecology and Human Impact Exam
	<b>Populations</b> - Population Growth - Limits to Growth - Human Population	4.6.1d-f 4.7.3b	Population growth	Graphing	Homework- Section Assessments and Regents Questions  Quizzes- 2 per chapter
	<b>Humans in Biosphere</b> - Renewable/ Nonrenewable resources -Pollution/Global Warming	4.7.1a, 4.7.1c,4.7.2a-c,	Limiting factors	Evaluate how humans affect the ecosystem	Invasive Species Project  Castle Learning- Ecology/Human Impact

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<b>June</b>	<b>REGENTS REVIEW</b>	ALL	Review of All NY State Required Lab Activities  - Diffusion through a Membrane  - Beaks of Finches  - Relationships and Biodiversity  - Making Connection	ALL	Questions for Regents Practice in Brief Review - Living Environment  Castle Learning - Review Assignments by Topic  Graphing Review  Practice Regents Exams