

**New Paltz Central School District  
Biology/The Living Environment**

	<b>CONTENT</b>	<b>SKILLS</b>	<b>ASSESSMENTS</b>
<b>105304009</b>	<b><u>UNIT 1: LIFE PROCESSES</u></b> <ul style="list-style-type: none"> <li>How do we determine living from non-living?</li> <li>What are the unifying processes of life?</li> </ul>	<ul style="list-style-type: none"> <li>Concept maps</li> <li>Venn diagrams</li> <li>Word splash</li> </ul>	<ul style="list-style-type: none"> <li>Tests, quizzes</li> </ul>
	<b><u>UNIT 2: TOOLS USED BY BIOLOGISTS</u></b> <ul style="list-style-type: none"> <li>What are the essential steps of any scientific investigation?</li> <li>How do we interpret scientific information?</li> </ul>	<ul style="list-style-type: none"> <li>Ability to use tools (centrifuge, chromatography, etc.)</li> <li>Develop a hypothesis</li> <li>Write a lab procedure</li> <li>Observation skills</li> <li>Demonstrate safety procedures</li> </ul>	<ul style="list-style-type: none"> <li>Tests, Quizzes</li> <li>Labs</li> </ul>
	<b><u>UNIT 3: CLASSIFICATION OF ORGANISMS</u></b> <ul style="list-style-type: none"> <li>Why is a system of classification required in biology?</li> <li>What is the essence of a good classification scheme?</li> </ul>	<ul style="list-style-type: none"> <li>Read and analyze a scientific article</li> </ul>	<ul style="list-style-type: none"> <li>Written analysis of scientific article</li> <li>Powerpoint project</li> <li>Tests, quizzes</li> <li>Labs</li> </ul>
<b>1050400</b>	<b><u>UNIT 4: EVOLUTION</u></b> <ul style="list-style-type: none"> <li>What evidence do we have of past life?</li> <li>How do we interpret our fossil record?</li> </ul>	<ul style="list-style-type: none"> <li>Read and analyze a scientific article</li> </ul>	<ul style="list-style-type: none"> <li>Written analysis of scientific article</li> <li>Tests and quizzes</li> <li>Labs</li> </ul>

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<b>N o v e m b e r</b>	<p><b><u>UNIT 5: BIOCHEMISTRY</u></b></p> <ul style="list-style-type: none"> <li>• How do we differentiate between organic and inorganic compounds?</li> <li>• What are the essential biochemical molecules of life?</li> <li>• Why are enzymes so important to life functions?</li> </ul>	<ul style="list-style-type: none"> <li>• Model building</li> <li>• Writing and identifying chemical structures</li> <li>• Identify chemical reaction of hydrolysis and dehydration synthesis</li> <li>• Design a controlled experiment</li> </ul>	<ul style="list-style-type: none"> <li>• Enzyme cartoon</li> <li>• Enzyme essay</li> <li>• Written analysis of scientific article</li> <li>• Complete lab write-up of student-designed controlled experiment</li> <li>• Tests and quizzes</li> <li>• Labs</li> </ul>
<b>D e c e m b e r</b>	<p><b><u>UNIT 6: CELL STRUCTURES AND FUNCTION/CELLULAR TRANSPORT</u></b></p> <ul style="list-style-type: none"> <li>• How is “cell theory” fundamental to understanding life’s basic building blocks?</li> <li>• What is the hierarchy of a cell’s internal organization?</li> </ul>	<ul style="list-style-type: none"> <li>• Make wet mount slides</li> <li>• Identify cell parts and functions</li> <li>• Focus microscope</li> <li>• Measure cells with microscope</li> </ul>	<ul style="list-style-type: none"> <li>• Cell cookies</li> <li>• Cell analogy project</li> <li>• Edible cell project</li> <li>• Tests and quizzes</li> <li>• Labs</li> </ul>

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	<b>CONTENT</b>	<b>SKILLS</b>	<b>ASSESSMENTS</b>
<b>J A N U A R Y</b>	<p><b><u>UNIT 7: CELLULAR RESPIRATION/PHOTOSYNTHESIS</u></b></p> <ul style="list-style-type: none"> <li>• Why is cellular respiration important for living things?</li> <li>• Why do we breathe?</li> <li>• What is the role of ATP in living systems?</li> <li>• Why are oxidation-reduction reactions essential to life?</li> </ul>	<ul style="list-style-type: none"> <li>• Read and analyze a scientific article</li> </ul>	<ul style="list-style-type: none"> <li>• Written analysis of scientific article</li> <li>• Tests and quizzes</li> <li>• Midterm examination</li> <li>• Labs</li> </ul>
<b>F E B R U A R Y</b>	<p><b><u>UNIT 8: ANATOMY AND PHYSIOLOGY</u></b></p> <ul style="list-style-type: none"> <li>• How is form related to function in living organisms?</li> <li>• How does the interrelation of organ systems maintain homeostasis?</li> <li>• How do anatomy and physiology reveal unifying features of biology?</li> <li>• What are the functions of the seven basic organ systems?</li> </ul>	<ul style="list-style-type: none"> <li>• Dissection</li> <li>• Identify parts and functions</li> <li>• Take pulse rate using sphygmometer to get Diastolic/Systolic numbers</li> <li>• Design a controlled experiment</li> </ul>	<ul style="list-style-type: none"> <li>• Medical Book (relate to the disruption of homeostasis)</li> <li>• New Drug analysis paper-using advertisement</li> <li>• Written analysis of scientific article</li> <li>• Complete lab write-up of student-designed controlled experiment</li> <li>• Tests and quizzes</li> <li>• Labs</li> </ul>

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<b>M a r c h - A p r i l - M a y</b>	<p><b><u>UNIT 9: GENETICS</u></b></p> <ul style="list-style-type: none"> <li>• What are Mendel’s laws and how did they impact genetics?</li> <li>• What are the roles of DNA and RNA in living things?</li> <li>• How does the process of gene expression work in living cells?</li> </ul>	<ul style="list-style-type: none"> <li>• Use Punnett Squares to complete genetics problems</li> <li>• Construct a simple DNA Model</li> <li>• Use a genetic code chart to arrange sequence of amino acids</li> <li>• Transcribe RNA from DNA and to Codons</li> <li>• Interpret DNA fingerprints- DNA mapping</li> <li>• Do test crosses graphically to construct a simple family genetic tree</li> </ul>	<ul style="list-style-type: none"> <li>• Article analysis on modern genetics/genetic engineering</li> <li>• Complete lab write up of student-designed controlled experiment</li> <li>• Tests and quizzes</li> <li>• Labs</li> </ul>
	<p><b><u>UNIT 10: ECOLOGY</u></b></p> <ul style="list-style-type: none"> <li>• What is the relationship between biotic and abiotic factors in the environment?</li> <li>• What kind of energy flow is required to maintain a stable, self-sustaining ecosystem?</li> <li>• What impact have humans had on the natural ecosystems found on our planet?</li> </ul>	<ul style="list-style-type: none"> <li>• Read and analyze a scientific article</li> <li>• Design a controlled experiment</li> </ul>	<ul style="list-style-type: none"> <li>• Written analysis of scientific article</li> <li>• Complete lab write-up of student designed controlled experiment</li> <li>• Tests and quizzes</li> <li>• Labs</li> </ul>

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<b>10 Week Mini- Course</b>	<b><u>REPRODUCTION AND DEVELOPMENT</u></b> <ul style="list-style-type: none"><li>• What is the genetic code and how does it affect living things?</li><li>• Why is reproduction so important to living organisms?</li><li>• How are sexual and asexual reproduction similar yet different?</li><li>• What is the process by which new cells arise from old cells?</li><li>• How do cells differentiate to produce all the structures found in living things?</li><li>• What are the structures and functions of the male and female reproductive systems and what role do hormones play in each?</li><li>• How do fertilization, implantation, and embryonic development work to create a human being?</li></ul>	<ul style="list-style-type: none"><li>• Read and analyze a scientific article</li></ul>	<ul style="list-style-type: none"><li>• Written analysis of scientific article</li><li>• Embryology book</li><li>• Cancer paper</li><li>• Birth defects paper</li><li>• Tests and quizzes</li><li>• Labs</li></ul>
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