

**New Paltz Central School District  
Science  
Life Science**

TIME	ESSENTIAL QUESTIONS/CONTENT	SKILLS	ASSESSMENTS
Throughout the Year	<p><b><u>Scientific Methodology</u></b></p> <ul style="list-style-type: none"> <li>• Why is the scientific method important in your life?</li> <li>• How do scientists solve problems?</li> <li>• Why do scientists follow the same procedures each time they do an investigation?</li> <li>• How do scientists know what they know?</li> <li>• How does a good experiment identify cause and effect relationships?</li> </ul> <p>-----</p> <ul style="list-style-type: none"> <li>• Scientific method</li> <li>• Data collection and analysis</li> <li>• Variables</li> </ul>	<ul style="list-style-type: none"> <li>• Design experiments</li> <li>• Conduct experiments</li> <li>• Collect data</li> <li>• Analyze data</li> <li>• Identify variables</li> <li>• Create double line graphs</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-assessment in life science content and skills</li> <li>• Lab work: <ul style="list-style-type: none"> <li>○ Dancing Spaghetti lab</li> <li>○ Gobstopper lab</li> </ul> </li> </ul>
September	<p><b><u>Unit 1: Characteristics of Living Things</u></b></p> <ul style="list-style-type: none"> <li>• How is a living thing different from a non-living thing?</li> <li>• What is/are the criteria for life?</li> <li>• What are the characteristics of living things?</li> </ul>	<ul style="list-style-type: none"> <li>• Recognize and analyze patterns and trends</li> <li>• Classify objects/living things according to an established scheme and a student-generated scheme</li> <li>• Sequence events</li> <li>• Identify cause and effect relationships</li> </ul>	<ul style="list-style-type: none"> <li>• Design Your Own Organism</li> <li>• Writing: Are Viruses Alive? <ul style="list-style-type: none"> <li>○ Support your answer</li> </ul> </li> </ul>

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October - November	<p><b><u>Unit 2: Ecology and Ecosystems</u></b></p> <ul style="list-style-type: none"> <li>• Why are green plants essential to the survival of the planet?</li> <li>• How does human impact cause environmental change?</li> <li>• How do the populations of an ecosystem interact and affect each other?</li> <li>• Would you like to live in a world without mold? Why or why not?</li> </ul> <p>-----</p> <ul style="list-style-type: none"> <li>• Ecosystems</li> <li>• Food chains/food webs</li> <li>• Environmental change</li> </ul>	<ul style="list-style-type: none"> <li>• Recognize and analyze patterns and trends</li> <li>• Interpret and/or illustrate the energy flow in a food chain, energy pyramid, or food web</li> <li>• Safely and accurately use measurement tools</li> <li>• Classify objects/living things according to an established scheme and a student-generated scheme</li> <li>• Sequence events</li> <li>• Identify cause and effect relationships</li> <li>• Identify structure and function relationships in organisms</li> </ul>	<ul style="list-style-type: none"> <li>• My Ecosystem Journal</li> <li>• Community food web</li> <li>• Community energy pyramid</li> <li>• Predator/Prey graphing activity</li> <li>• Writing: How does The Lorax parallel today's environmental issues? (Hydrofracking)</li> </ul>
December - January	<p><b><u>Unit 3: Classification and the Five Kingdoms</u></b></p> <ul style="list-style-type: none"> <li>• Why are organisms classified?</li> <li>• What criteria (characteristics) place organisms in the five kingdoms?</li> </ul> <p>-----</p> <ul style="list-style-type: none"> <li>• Classify living things</li> </ul>	<ul style="list-style-type: none"> <li>• Classify objects/living things according to an established scheme and a student generated scheme</li> <li>• Develop and use a dichotomous key</li> <li>• Manipulate a compound microscope to view microscopic objects</li> <li>• Recognize and analyze patterns and trends</li> <li>• Sequence events</li> </ul>	<ul style="list-style-type: none"> <li>• Design Your Own Key</li> <li>• Midterm examination</li> <li>• Graphic organizers - classification schema</li> <li>• Laboratory on prepared specimens - Five Kingdoms</li> </ul>

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January - February	<p><b><u>Unit 4: Adaptation and Evolution</u></b></p> <ul style="list-style-type: none"> <li>• How have evolutionary processes affected organisms over time?</li> <li>• How do competition and changing environments affect species?</li> <li>• What evidence supports evolutionary theory?</li> <li>• What evidence explains the diversity of life on earth?</li> </ul> <p>-----</p> <ul style="list-style-type: none"> <li>• Adaptation</li> <li>• Evolution</li> </ul>	<ul style="list-style-type: none"> <li>• Identify structure and function relationships in organisms</li> <li>• Recognize and analyze patterns and trends</li> <li>• Sequence events</li> <li>• Identify cause and effect relationships</li> </ul>	<ul style="list-style-type: none"> <li>• Extinct animal poster project</li> <li>• Library research project: How would Darwin explain unusual organism adaptations?</li> <li>• Venn diagram: Compare and contrast LaMarck with Darwin</li> <li>• Graph: The Peppered Moths</li> <li>• Best Beaks lab</li> <li>• Bean Variation lab</li> <li>• Fossil lab</li> </ul>
February - March	<p><b><u>Unit 5: Cells and Heredity</u></b></p> <ul style="list-style-type: none"> <li>• How are cells the basic units of structure and function in an organism?</li> <li>• How do organisms inherit genetic information?</li> <li>• How is a cell like a community?</li> <li>• What are the reasons cells divide?</li> <li>• How are asexual and sexual reproduction different?</li> <li>• How do plants carry out sexual reproduction?</li> </ul>	<ul style="list-style-type: none"> <li>• Manipulate a compound microscope to view microscopic objects</li> <li>• Determine the size of a microscopic object using a compound microscope</li> <li>• Prepare a wet mount slide</li> <li>• Use appropriate staining techniques</li> <li>• Design and use a Punnett Square or a pedigree chart to predict the probability of certain traits</li> <li>• Identify structure and function relationships in organisms</li> <li>• Safely and accurately use measurement tools</li> <li>• Use appropriate units for measured or calculated values</li> <li>• Compare and contrast</li> </ul>	<ul style="list-style-type: none"> <li>• Cell-a-bration               <ul style="list-style-type: none"> <li>○ Cell models</li> </ul> </li> <li>• Microscopic drawings               <ul style="list-style-type: none"> <li>○ Field of view, depth of field</li> </ul> </li> <li>• Monster Mating Project using Punnett Squares</li> <li>• The Egg Lab</li> <li>• Flower Dissection lab</li> <li>• Graphing chromosome numbers</li> <li>• Compare and contrast meiosis/ mitosis</li> </ul>

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April - June	<p><b><u>Unit 6: Body Organization</u></b></p> <ul style="list-style-type: none"> <li>• How do human organ systems function and interact?</li> <li>• How are body structures designed for particular functions?</li> </ul>	<ul style="list-style-type: none"> <li>• Identify pulse points and pulse rates</li> <li>• Safely and accurately use measurement tools.</li> <li>• Use appropriate units for measured or calculated values</li> <li>• Recognize and analyze patterns and trends</li> <li>• Sequence events</li> <li>• Identify cause and effect relationships</li> <li>• Manipulate a compound microscope to view microscopic objects</li> <li>• Identify structure and function relationships in organisms</li> </ul>	<ul style="list-style-type: none"> <li>• Year end alternative assessment</li> <li>• Lung capacity lab</li> <li>• Diet analysis</li> <li>• Dissection labs               <ul style="list-style-type: none"> <li>○ Earthworm</li> <li>○ Grasshopper</li> <li>○ Frog</li> </ul> </li> <li>• Comparative anatomy project using virtual dissection software</li> <li>• Systems diagram</li> </ul>