

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

TIME	ESSENTIAL QUESTIONS/CONTENT	SKILLS	ASSESSMENTS
Throughout the Year	<u>Scientific Methodology</u> • Why is the scientific method important in your life? • How do scientists solve problems? • Why do scientists follow the same procedures each time they do an investigation? • How do scientists know what they know? • How does a good experiment identify cause and effect relationships? ----- • Scientific method • Data collection and analysis • Variables	• Design experiments • Conduct experiments • Collect data • Analyze data • Identify variables • Create double line graphs	• Pre-assessment in life science content and skills • Lab work: ○ Dancing Spaghetti lab ○ Gobstopper lab
September	<u>Unit 1: Characteristics of Living Things</u> • How is a living thing different from a non-living thing? • What is/are the criteria for life? • What are the characteristics of living things?	• Recognize and analyze patterns and trends • Classify objects/living things according to an established scheme and a student-generated scheme • Sequence events • Identify cause and effect relationships	• Design Your Own Organism • Writing: Are Viruses Alive? ○ Support your answer

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October - November	<u>Unit 2: Ecology and Ecosystems</u> - Why are green plants essential to the survival of the planet? - How does human impact cause environmental change? - How do the populations of an ecosystem interact and affect each other? - Would you like to live in a world without mold? Why or why not? ----- - Ecosystems - Food chains/food webs - Environmental change	- Recognize and analyze patterns and trends - Interpret and/or illustrate the energy flow in a food chain, energy pyramid, or food web - Safely and accurately use measurement tools - Classify objects/living things according to an established scheme and a student-generated scheme - Sequence events - Identify cause and effect relationships - Identify structure and function relationships in organisms	- My Ecosystem Journal - Community food web - Community energy pyramid - Predator/Prey graphing activity - Writing: How does The Lorax parallel today's environmental issues? (Hydrofracking)
December - January	<u>Unit 3: Classification and the Five Kingdoms</u> - Why are organisms classified? - What criteria (characteristics) place organisms in the five kingdoms? ----- - Classify living things	- Classify objects/living things according to an established scheme and a student generated scheme - Develop and use a dichotomous key - Manipulate a compound microscope to view microscopic objects - Recognize and analyze patterns and trends - Sequence events	- Design Your Own Key - Midterm examination - Graphic organizers - classification schema - Laboratory on prepared specimens - Five Kingdoms

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January - February	<u>Unit 4: Adaptation and Evolution</u> - How have evolutionary processes affected organisms over time? - How do competition and changing environments affect species? - What evidence supports evolutionary theory? - What evidence explains the diversity of life on earth? ----- - Adaptation - Evolution	- Identify structure and function relationships in organisms - Recognize and analyze patterns and trends - Sequence events - Identify cause and effect relationships	- Extinct animal poster project - Library research project: How would Darwin explain unusual organism adaptations? - Venn diagram: Compare and contrast LaMarck with Darwin - Graph: The Peppered Moths - Best Beaks lab - Bean Variation lab - Fossil lab
February - March	<u>Unit 5: Cells and Heredity</u> - How are cells the basic units of structure and function in an organism? - How do organisms inherit genetic information? - How is a cell like a community? - What are the reasons cells divide? - How are asexual and sexual reproduction different? - How do plants carry out sexual reproduction?	- Manipulate a compound microscope to view microscopic objects - Determine the size of a microscopic object using a compound microscope - Prepare a wet mount slide - Use appropriate staining techniques - Design and use a Punnett Square or a pedigree chart to predict the probability of certain traits - Identify structure and function relationships in organisms - Safely and accurately use measurement tools - Use appropriate units for measured or calculated values - Compare and contrast	- Cell-a-bration - Cell models - Microscopic drawings - Field of view, depth of field - Monster Mating Project using Punnett Squares - The Egg Lab - Flower Dissection lab - Graphing chromosome numbers - Compare and contrast meiosis/ mitosis

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April - June	<u>Unit 6: Body Organization</u> - How do human organ systems function and interact? - How are body structures designed for particular functions?	- Identify pulse points and pulse rates - Safely and accurately use measurement tools. - Use appropriate units for measured or calculated values - Recognize and analyze patterns and trends - Sequence events - Identify cause and effect relationships - Manipulate a compound microscope to view microscopic objects - Identify structure and function relationships in organisms	- Year end alternative assessment - Lung capacity lab - Diet analysis - Dissection labs - Earthworm - Grasshopper - Frog - Comparative anatomy project using virtual dissection software - Systems diagram