

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

TIME	ESSENTIAL QUESTIONS/CONTENT	SKILLS	ASSESSMENTS
Throughout the Year	<p><u>Scientific Methodology</u></p> <ul style="list-style-type: none"> • 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? <p>-----</p> <ul style="list-style-type: none"> • Scientific method • Data collection and analysis • Variables 	<ul style="list-style-type: none"> • Design experiments • Conduct experiments • Collect data • Analyze data • Identify variables • Create double line graphs 	<ul style="list-style-type: none"> • Pre-assessment in life science content and skills • Lab work: <ul style="list-style-type: none"> ○ Dancing Spaghetti lab ○ Gobstopper lab
September	<p><u>Unit 1: Characteristics of Living Things</u></p> <ul style="list-style-type: none"> • 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? 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Design Your Own Organism • Writing: Are Viruses Alive? <ul style="list-style-type: none"> ○ Support your answer

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October - November	<p><u>Unit 2: Ecology and Ecosystems</u></p> <ul style="list-style-type: none"> • 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? <p>-----</p> <ul style="list-style-type: none"> • Ecosystems • Food chains/food webs • Environmental change 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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	<p><u>Unit 3: Classification and the Five Kingdoms</u></p> <ul style="list-style-type: none"> • Why are organisms classified? • What criteria (characteristics) place organisms in the five kingdoms? <p>-----</p> <ul style="list-style-type: none"> • Classify living things 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Design Your Own Key • Midterm examination • Graphic organizers - classification schema • Laboratory on prepared specimens - Five Kingdoms

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January - February	<p><u>Unit 4: Adaptation and Evolution</u></p> <ul style="list-style-type: none"> • 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? <p>-----</p> <ul style="list-style-type: none"> • Adaptation • Evolution 	<ul style="list-style-type: none"> • Identify structure and function relationships in organisms • Recognize and analyze patterns and trends • Sequence events • Identify cause and effect relationships 	<ul style="list-style-type: none"> • 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	<p><u>Unit 5: Cells and Heredity</u></p> <ul style="list-style-type: none"> • 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? 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Cell-a-bration <ul style="list-style-type: none"> ○ Cell models • Microscopic drawings <ul style="list-style-type: none"> ○ 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	<p><u>Unit 6: Body Organization</u></p> <ul style="list-style-type: none"> • How do human organ systems function and interact? • How are body structures designed for particular functions? 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Year end alternative assessment • Lung capacity lab • Diet analysis • Dissection labs <ul style="list-style-type: none"> ○ Earthworm ○ Grasshopper ○ Frog • Comparative anatomy project using virtual dissection software • Systems diagram