New Paltz Central School District
Science
Second Grade

TIME	CONTENT	SKILLS	ASSESSMENTS
October	**<u>Health and Safety</u>** • How do I keep myself healthy and safe? • What habits help or harm me? - - - • Humans need a variety of healthy foods, exercise, and rest in order to grow and maintain good health. • Good health habits include hand washing and personal cleanliness; avoiding harmful substances (including alcohol, tobacco, illicit drugs); eating a balanced diet; engaging in regular exercise.	• Classify objects according to an established scheme (classify foods using the food pyramid). • Generate a scheme for classification. • Observe, identify, and communicate cause-and-effect relationships. • Collect and organize data, choosing the appropriate representation: journal entries (keep a food diary); graphic representations; drawings/pictorial representations.	• Unit assessment • Science journals • Observation of process skills • Lab reports • Data collection • Graphs • Student sharing – vocabulary, full descriptions, complete sentences, product (chart, graph, etc.), sequencing
December - January	**<u>Matter and Weather</u>** • What are the properties of water? • How does water change state? • How do we change matter? • Why do objects sink or float? • Why do we call the water cycle a cycle? • How are the water cycle and weather related? • How can weather help or harm living things and the land? - - - • Measurements can be made with standard, metric, and nonstandard units. • The material(s) an object is made up of determine some specific properties of the object (sink/float, conductivity, magnetism). Properties can be observed or measured	• Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section. • Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). • Safely and accurately use a hand lens, dropper, balance, thermometer, gram weights, and measuring cups. • Use information systems appropriately.	• Unit assessment • Science journals • Observation of process skills • Lab reports • Water cycle report (checklist attached) • Data collection • Graphs • Student sharing – vocabulary, full descriptions, complete sentences, product (chart, graph, etc.), sequencing

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	with tools such as hand lenses, metric rulers, thermometers, balances, magnets, circuit testers, and graduated cylinders.
	• Objects and/or materials can be sorted or classified according to their properties.
	• Some properties of an object are dependent on the conditions of the present surroundings in which the object exists. For example: temperature – hot or cold.
	• Scientists now believe that matter exists in four states: solid, liquid, gas, and plasma:
	  ○ Solids have a definite shape and volume.
	  ○ Liquids do not have a definite shape but have a definite volume.
	  ○ Gases do not hold their shape or volume.
	• Temperature can affect the state of matter of a substance.
	• Natural cycles and patterns include: weather changing from day to day and through the seasons.
	• Weather is the condition of the outside air at a particular moment.
	• Weather can be described and measured by:
	  ○ temperature.
	  ○ wind speed and direction.
	  ○ form and amount of precipitation.
	  ○ general sky conditions (cloudy, sunny, partly cloudy).
		• Select appropriate standard and nonstandard measurement tools for measurement activities.
		• Estimate, find, and communicate measurements, using standard and nonstandard units.
		• Use and record appropriate units for measured or calculated values.
		• Order and sequence objects and/or events.
		• Use senses optimally for making observations.
		• Observe, analyze, and report observations of objects and events.
		• Observe, identify, and communicate patterns.
		• Observe, identify, and communicate cause-and-effect relationships.
		• Generate appropriate questions (teacher and student based) in response to observations, events, and other experiences.
		• Observe, collect, organize, and appropriately record data, then accurately interpret results.
		• Collect and organize data, choosing the appropriate representation: journal entries; graphic representations; drawings/pictorial representations.
		• Make predictions based on prior experiences and/or information.	

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	• Water is recycled by natural processes on Earth:
	  ○ evaporation: changing of water (liquid) into water vapor (gas).
	  ○ condensation: changing of water vapor (gas) into water (liquid).
	  ○ precipitation: rain, sleet, snow, hail.
	  ○ runoff: water flowing on Earth's surface.
	  ○ groundwater: water that moves downward into the ground.
	• Erosion and deposition result from the interaction among air, water, and land:
	  ○ interaction between air and water breaks down earth materials.
	  ○ pieces of earth material may be moved by air, water, wind, and gravity.
	  ○ pieces of earth material will settle or deposit on land or in the water in different places.
	  ○ soil is composed of broken-down pieces of living and nonliving earth material.
	• Extreme natural events (floods, fires, earthquakes, volcanic eruptions, hurricanes, tornadoes, and other severe storms) may have positive or negative impacts on living things.
	• Heat energy from the Sun powers the water cycle.
		• Compare and contrast organisms/objects/events in the living and physical environments.
		• Identify and control variables/factors.
		• Plan, design, and implement a short-term and long-term investigation based on a student – or teacher-posed problem.
		• Communicate procedures and conclusions through oral and written presentations.	

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February	**<u>Sound Energy</u>** • What makes sound? • How can you change sound? • Why are sounds different? • How can sounds help or harm us? - - - • Energy exists in various forms: heat, electric, sound, chemical, mechanical, light. *(Second grade focuses on sound).* • Energy can be transferred from one place to another. • Energy and matter interact: water is evaporated by the Sun's heat; a bulb is lighted by means of electrical current; a musical instrument is played to produce sound; dark colors may absorb light, light colors may reflect light. • Interactions with forms of energy can be either helpful or harmful. • Humans utilize interactions between matter and energy: mechanical to sound (e.g., musical instruments, clapping).	• Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). • Use information systems appropriately. • Classify objects according to an established order. • Generate a scheme for classification. • Utilize senses optimally for making observations. • Observe, analyze, and report observations of objects and events. • Observe, identify, and communicate cause-and-effect relationships. • Generate appropriate questions (teacher and student based) in response to observations, events, and other experiences. • Observe, collect, organize, and appropriately record data, then accurately interpret results. • Collect and organize data, choosing the appropriate representation: journal entries; graphic representations; drawings/pictorial representations. • Make predictions based on prior experiences and/or information. • Compare and contrast organisms/objects/events in the living and physical environments. • Identify and control variables/factors. • Plan, design, and implement a short-term and long-term investigation based on a student-or teacher-posed problem. • Communicate procedures and conclusions through oral and written presentations.	• Unit assessment • Science journals • Observation of process skills • Lab reports • Data collection • Graphs • Student sharing – vocabulary, full descriptions, complete sentences, product (chart, graph, etc.), sequencing • Sound vocabulary

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March - April	**<u>Animals</u>** • What are the traits of local animals (focus on local reptiles, amphibians, insects)? • What do animals need to survive and thrive? • How can animals be like or unlike their parents? • What energy do animals consume? produce? - - - • Animals need air, water, and food in order to live and thrive. • Nonliving things can be human-created or naturally occurring. • Plants and animals closely resemble their parents and other individuals in their species. • Plants and animals can transfer specific traits to their offspring when they reproduce. • In order to survive in their environment, plants and animals must be adapted to their environment. • Plants and animals have life cycles. These may include beginning of life, development into an adult, reproduction as an adult, and eventually death.	• Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section. • With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing. • Safely and accurately use a hand lens and ruler. • Use information systems appropriately (research animals). • Order and sequence objects and/or events (animal life cycle/span). • Classify objects according to an established scheme. • Generate a scheme for classification. • Utilize senses optimally for making observations. • Collect and organize data, choosing the appropriate representation. • Compare and contrast organisms/objects/events in the living and physical environments.	• Unit assessment • Science journals • Observation of process skills • Lab reports • Data collection • Graphs • Student sharing – vocabulary, full descriptions, complete sentences, product (chart, graph, etc.), sequencing

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May	**<u>Plants</u>** • What is the life cycle of a plant? • How can new plants be like or unlike their parents? • How are plants used? • What energy do plants consume? Produce? • What do plants need to survive and thrive? - - - • Plants require air, water, nutrients, and light in order to live and thrive. • Plants and animals closely resemble their parents and other individuals in their species. • Plants and animals can transfer specific traits to their offspring when they reproduce. • Each plant has different structures that serve different functions in growth, survival, and reproduction: o roots help support the plant and take in water and nutrients. o leaves help plants utilize sunlight to make food for the plant. o stems, stalks, trunks, and other similar structures provide support for the plant. o some plants have flowers. o flowers are reproductive structures of plants that produce fruit which contains seeds. o seeds contain stored food that aids in germination and the growth of young plants. • In order to survive in their environment, plants and animals must be adapted to that environment: seeds disperse by a plant's own mechanism and/or in a variety of ways that can include wind, water, and animals.	• With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing. • Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). • Safely and accurately use a ruler. • Use information systems appropriately (research how plants are used). • Observe, analyze, and report observations of objects and events (plant journals). • Observe, identify, and communicate cause-and-effect relationships (plant experiments). • Communicate procedures and conclusions through oral and written presentations.	• Unit assessment • Science journals • Observation of process skills • Lab reports • Data collection • Graphs • Student sharing – vocabulary, full descriptions, complete sentences, product (chart, graph, etc.), sequencing

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	• Plants and animals have life cycles. These may include beginning of a life, development into an adult, reproduction as an adult, and eventually death. • Each kind of plant goes through its own stages of growth and development that may include seed, young plant, and mature plant. • Plants respond to changes in their environment. For example, the leaves of some green plants change position as the direction of light changes; the parts of some plants undergo seasonal changes that enable the plant to grow; seeds germinate, and leaves form and grow. • The health, growth, and development of organisms are affected by environmental conditions such as the availability of food, air, water, space, shelter, heat, and sunlight.		