Pacing Guide

Grade: Kindergarten **Subject**: Science

Month	Topic Area	New Jersey State Learning Standards
September	Motion and Stability: Forces and Interactions	**PS2.A:** Forces and Motion • Pushes and pulls can have different strengths and directions
October	Motion and Stability: Forces and Interactions	**PS2.B:** Types of Interactions • When objects collide, they push on one another and can change motion.
November	Energy	**PS3.B:** Conservation of Energy and Energy Transfer • Sunlight warms Earth's surface
December	Energy	**K-PS3-1 –** Make observations to determine the effect of sunlight on Earth's surface
January	Molecules to Organisms: Structures and Processes	**LS1.C:** Organization for Matter and Energy Flow in Organisms • All animals need food in order to live and grow. They obtain their food from plants or from other animals.
February	Molecules to Organisms: Structures and Processes	**LS1.C:** Organization for Matter and Energy Flow in Organisms • All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow.
March	Molecules to Organisms: Structures and Processes	**K-LS1-1 –** Use observations to describe patterns of what plants and animals (including humans) need to survive.
April	Earth's Systems	**ESS2.D:** Weather and Climate • Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather to notice patterns over time.

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May	Earth's Systems	**ESS2.E:** Bio-geology • Plants and animals can change their environment.
June	Earth's Systems	**ESS3.F:** Human Impacts on earth Systems • Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things.

Grade: First **Subject**: Science

Month	Topic Area	New Jersey State Learning

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		Standards
September	Waves and Their Applications in Technologies for Information Transfer	**PS4.A:** Wave Properties • Sound can make matter vibrate, and vibrating matter can make sound
October	Waves and Their Applications in Technologies for Information Transfer	**PS4.B:** Electromagnetic Radiation • Objects can be seen if light is available to illustrate them or if they give off their own light
November	Molecules to Organisms: Structures and Processes	**LS1.A:** Structure and Function • All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)
December	Molecules to Organisms: Structures and Processes	**LS1.B:** Growth and Development of Organisms • Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2)
January	Molecules to Organisms: Structures and Processes	**LS1.C:** Information Processing • Animals have body parts that capture and convey different kinds of information needs for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.
February	Heredity: Inheritance and Variation of Traits	**LS3.A:** Inheritance of Traits • Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents.
March	Heredity: Inheritance and Variation of Traits	**LS3.B:** Variation of Traits • Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.
April	Earth's Place in the Universe	**ESS1.A:** The Universe and its Stars

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		• Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted
May	Earth's Place in the Universe	**ESS1.A:** The Universe and its Stars • Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted
June	Earth's Place in the Universe	**ESS1.B:** Earth and the Solar System • Seasonal patterns of sunrise and sunset can be observed, described, and predicted.

Grade: Second **Subject**: Science

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Month	Topic Area	New Jersey State Learning Standards
September	Matter and its Interactions	**PS1.A:** structure and Properties of Matter • Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties.
October	Matter and its Interactions	**PS1.B:** Chemical Reactions • Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.
November	Ecosystems: Interactions, Energy, and Dynamics	**LS1.A:** Structure and Function • All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)
December	Ecosystems: Interactions, Energy, and Dynamics	**LS2.A:** Interdependent Relationships in Ecosystems • Plants depend on water and light to grow. (2-LS2-1) • Plants depend on animals for pollination or to move their seeds around.
January	Ecosystems: Interactions, Energy, and Dynamics	**ETS1.B:** Developing Possible Solutions • Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people survive. Plants also respond to some external inputs.
February	Biological Evolution: Unity and Diversity	**LS4.D:** Biodiversity and Humans • There are many different kinds of living things in any area, and they

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		exist in different places on land and in water.
March	Earth's Place in the Universe	**ESS1.C:** The History of the Planet Earth • Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe
April	Earth's Systems	**ESS2.A:** Earth Materials and Systems • Wind and water can change the shape of the land.
May	Earth's Systems	**ESS2.B:** Plate Tectonics and Large-Scale System Interactions • Maps show where things are located. One can map the shapes and kinds of land and water in any area.
June	Engineering Design	**ETS1.A:** Defining and Delimiting Engineering Problems • A situation that people want to change or create can be approached as a problem to be solved through engineering. (K-2-ETS1-1) • Asking questions, making observations, and gathering information are helpful in thinking about problems.

Grade: Third **Subject**: Science

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Month	Topic Area	New Jersey State Learning Standards
September	Motion and Stability: Forces and Interactions	**PS2.A:** Forces and Motion • Each force acts as one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion. (Boundary: Qualitative and conceptual, but not quantitative addition of forces are used at this level.)
October	Motion and Stability: Forces and Interactions	**PS2.B:** Types of Interactions • Objects in contact exert forces on each other. (3-PS2-1) • Electric, and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other.
November	Molecules to Organisms: Structures and Processes	**LS1.B:** Growth and Development of Organisms • Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles
December	Ecosystems: Interactions, Energy, and Dynamics	**LS2.D:** Social Interactions and Group Behavior • Being part of a group helps animals obtain, food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size.
January	Heredity: Inheritance and Variation of Traits	**LS3.A:** Inheritance of Traits • Many characteristics of organisms are inherited from their parents. (3-LS3-1) • Other characteristics result from individuals' interactions with the

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		environment, which can range from diet to learning. Many characteristics involve both inheritance and environment.
February	Biological Evolution: Unity and Diversity	**LS2.C:** Ecosystem Dynamics, Functioning, and Resilience • When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die
March	Biological Evolution: Unity and Diversity	**LS4.A:** Evidence and Common Ancestry and Diversity • Some kinds of plants and animals that once lived on Earth are no longer found anywhere.
April	Earth's Systems	**ESS2.D:** Weather and Climate • Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next
May	Earth and Human Activity	**ESS3.B:** Natural Hazards • A variety of natural hazards result from natural processes.
June	Engineering Design	**ESS3.B:** Natural Hazards • Humans cannot eliminate natural hazards but can take steps to reduce their impacts.

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Month	Topic Area	New Jersey State Learning Standards

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September	Energy	**PS3.A:** Definitions of Energy • The faster a given object is moving, the more energy it possesses. (4-PS3-1) • Energy can be moved from place to place by moving objects or through sound, light, or electric currents
October	Energy	**PS3.B:** Conservation of Energy and Energy Transfer • Energy is present whenever there are moving objects, sound, light, or heat. When objects collide, energy can be transferred from one object to another, thereby changing their motion. In such collisions, some energy is typically also transferred to the surrounding air; as a result, the air gets heated and sound is produced
November	Waves and their Applications in Technologies for Information Transfer	**PS4.A:** Wave Properties • Waves, which are regular patterns of motion, can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; there is not net motion in the direction of the wave except when the water meets a beach.
December	Waves and their Applications in Technologies for Information Transfer	**PS4.B:** Electromagnetic Radiation • An object can be seen when light reflected from its surface enters the eyes.
January	Molecules to Organisms: Structures and Processes	**LS1.A:** Structure and Function • Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (diet to learning. Many characteristics involve both inheritance and environment.
February	Molecules to Organisms: Structures and Processes	**LS1.D:** Information Processing • Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal's brain. Animals are able to use their

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		perceptions and memories to guide their actions.
March	Earth's Systems	**ESS2.A:** Earth Materials and Systems • Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around.
April	Earth's Systems	**ESS2.E:** Bio-geology • Living things affect the physical characteristics of their regions
May	Earth and Human Activity	**ESS3.A:** Natural Resources • Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not.
June	Earth and Human Activity	**ESS3.B:** Natural Hazards • A variety of hazards result from natural processes (e.g., earthquakes, tsunamis, volcanic eruptions). Humans cannot eliminate the hazards, but can take steps to reduce their impacts

Grade: Fifth **Subject**: Science

Month	Topic Area	New Jersey State Learning

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		Standards
September	Matter and Its Interactions	**PS1.A:** Structure and Properties of Matter • Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means.
October	Matter and Its Interactions	**PS1.B:** Chemical Reactions • When two or more different substances are mixed, a new substance with different properties may be formed
November	Matter and Its Interactions	**PS1.B:** Chemical Reactions • No matter what reaction or change in properties occurs, the total weight of the substances does not change.
December	Motion and Stability: Forces and Interactions	**PS2.B:** Types of Interactions • The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center.
January	Energy	**PS3.D:** Energy in Chemical Processes and Everyday Life • The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter
February	Energy	**LS1.C:** Organization for Matter and Energy Flow in Organisms • Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion
March	Energy	**5-PS3-1 –** Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the

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		sun. •
April	Molecules to Organisms: Structures and Processes	**LS1.C:** Organization for Matter and Energy Flow in Organisms • Plants acquire their material for growth chiefly from air and water.
May	Molecules to Organisms: Structures and Processes	**5-LS1-1 –** Support an argument that plants get the materials they need for growth chiefly from air and water. •
June	Molecules to Organisms: Structures and Processes	**LS1.C:** Organization for Matter and Energy Flow in Organisms • Plants acquire their material for growth chiefly from air and water.

Grade: Sixth **Subject**: Science

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Month	Topic Area	New Jersey State Learning Standards
September	Matter and Energy in Organisms and Ecosystems	**MS-LS1-6:** Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.
October	Matter and Energy in Organisms and Ecosystems	**MS-LS1-7:** Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and / or releases energy as this matter moves through an organism.
November	Matter and Energy in Organisms and Ecosystems	**MS-LS2-1:** Analyze and interpret data to provide evidence for the effects of resource availability on organisms and population of organisms in an ecosystem.
December	Matter and Energy in Organisms and Ecosystems	**MS-LS2-3:** Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem..
January	Ecosystems-Biodiversity and Organisms	**MS-LS2-2:** Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
February	Ecosystems-Biodiversity and Organisms	**MS-LS2-5:** Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
March	Ecosystems-Biodiversity and Organisms	LS2.A: Interdependent Relationships in Ecosystems • Similarly, predatory interactions may reduce the number of organisms or eliminate whole populations of organisms. Mutually beneficial interactions, in contrast, may become so interdependent that each organism requires the other for survival.
April	Weather and Climate	ESS2.A: Earth Materials and Systems • All Earth processes are the result of energy flowing and matter cycling within and among the planet's

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		systems. This energy is derived from the sun and Earth's hot interior.
May	Weather and Climate	ESS2.C: The Roles of Water in Earth's Surface Processes • Water continually cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation and crystallization, and precipitation, as well as downhill flows on land.
June	Weather and Climate	ESS2.D: Weather Climate • Weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things.