

# Life Lab Science

# Scope and Sequence

- K Great Explorations
- 1 Earth Is Home
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- 3 How Things Work
- 4 Connections
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1156 High St.  
Santa Cruz, CA 95064  
831-459-2001  
Fax 831-459-3483  
[www.lifelab.org](http://www.lifelab.org)

Life Lab Science		Grade K		Great Explorations		Scope and Sequence	
	Theme/Connections	Life Science	Earth Science	Physical Science	Process Skills		
Overview	Exploration: We use our senses to learn about the world around us.	Living things have characteristics that can be described and that distinguish them from nonliving things.	There are different kinds of rocks and soil. Soil is home for plants and animals. A variety of living and nonliving things can be found in soil.	All things in the physical world can be described by their properties. We can observe, describe, and record these properties.	Observing—Students observe the natural world by using their senses. Comparing—Students compare similarities and differences of objects. Communicating—Students develop descriptive language to communicate observations		
Exploring Our Senses	Exploration: The garden is a place to explore and observe the natural world using our senses.	Plants are living things. Plants have different growth requirements.	Soil is part of the garden. Water can change the condition of the soil.	All parts of the garden, including plants, soil, and water, have physical properties we can describe.	Observe objects closely using all senses. Share tasks and communicate observations with others.		
Exploring Soil	Exploration: We use our senses and a variety of tools to explore different types of soil and rocks.	Plants and animals live in the soil. Their lives depend on the properties of soil.	Soil is made up of many things from living and nonliving sources. There are different kinds of soil. There are different kinds of rocks.	Soil and rocks are part of the physical world. They have properties we can observe and describe. Water changes soil and rocks.	Observe closely and notice details. Compare based on similarities and differences. Draw observations and communicate observations with others.		

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Exploring Water	Exploration: Water has properties that we can explore and describe using tools and materials.	All living things need water. Liquid water affects living and nonliving things.	Water is all around us.	Water has properties that we can observe. Water is a liquid. Some objects float in water. Other objects sink in water.	Observe characteristics of objects. Compare the similarities and differences of objects. Communicate observations with others.		
Exploring Plants	Exploration: All things in the physical world are made up of smaller parts. We can explore these parts using tools.	Plants are made up of parts, including roots, stems, and leaves.	Plants grow in the soil.	Plant parts have different properties that we can describe.	Observe changes over time. Compare and sort by similarities and differences. Describe changes over time.		
Exploring Garden Animals	Exploration: There are many different kinds of animals. We can use our senses to explore how they look and what they do.	Animals have specific structures, behaviors, and survival needs. Many animals depend on plants for food and shelter.	Soil and rocks provide shelter for some animals.	We can identify animals by their unique physical properties. Animals move in different ways.	Observe characteristics of living things. Compare observations of different living things. Record information in books and graphs.		
Garden Celebration	Exploration: We use our senses and a variety of tools to explore and learn about the world.	Plants and animals have specific growth and habitat requirements.	Soil is composed of many different things. Soil provides shelter for some animals.	Living and nonliving things have physical properties that we can observe and describe.	Demonstrate skills in observing, using senses, comparing similarities and differences, and communicating observations to others.		

Life Lab Science		Grade 1		Earth Is Home		Scope and Sequence	
	Theme Connections	Life Science	Earth Science	Physical Science	Process Skills		
Overview	<p><b>Diversity:</b> The natural world contains a rich variety of living and nonliving things. They have observable similarities and differences.</p> <p><b>Cycles:</b> Both living and nonliving things have patterns of change. When patterns of change repeat themselves, they are cycles. Home is a place where the needs of living things are met.</p>	<p>There are many different kinds of living and nonliving things on Earth.</p> <p>Living things have characteristics that distinguish them from nonliving things.</p> <p>Living things go through a life cycle.</p>	<p>The Earth provides resources living things need to survive.</p> <p>There are many cycles on Earth, including the seasons and day and night.</p>	<p>Living and nonliving things can be described by their properties. We can use our senses to describe the many different properties of things in our physical world.</p>	<p><b>Observing</b>—Students gain experience in the natural world by observing it with their senses.</p> <p><b>Comparing</b>—Students compare similarities and differences among the things they observe.</p> <p><b>Communicating</b>—Students develop descriptive language to communicate what they observe.</p>		
Sensing Our World	<p><b>Diversity:</b> Senses can be used to explore the different kinds of plants and animals that live in a garden.</p>	<p>Humans, like other animals, use their senses to learn about the world around them.</p>	<p>The garden is a place where plants and animals live.</p>	<p>Objects in the garden have properties that we can observe.</p>	<p><b>Observe</b> objects closely and describe them in detail.</p> <p><b>Cooperate</b> with one another by sharing ideas and listening.</p>		



Life Lab Science		Grade 1		Earth Is Home		Scope and Sequence	
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Investigating Seeds	<p><b>Diversity:</b> There are many different kinds of seeds.</p> <p><b>Cycles:</b> Seeds are part of a plant's life cycle.</p>	<p>Seeds are living things. They have characteristics that can be described and that distinguish them from nonliving things. There are many kinds of seeds and they all share the characteristics of living things.</p>	<p>Seeds require water to germinate.</p>	<p>Seeds have physical properties, such as size, shape, and color, that we can observe and describe.</p>	<p>Continue using the senses to observe characteristics.</p> <p>Compare objects and categorize them according to similarities and differences.</p>		
Exploring Soil	<p><b>Diversity:</b> There are many different kinds of plants and animals. There is a diversity of living and nonliving things in the soil.</p>	<p>We use our senses to compare the characteristics of living and nonliving things in the soil.</p> <p>Animals depend in part on soil for food and shelter.</p>	<p>Soil is made up of many things.</p> <p>Soil is an example of a nonliving thing.</p> <p>Soil is home to many living things.</p>	<p>Soil has properties that we can observe and describe.</p> <p>Change occurs in living and nonliving things in the soil.</p>	<p>Observe and compare characteristics of objects.</p> <p>Communicate observations to others.</p>		
Observing Earth's Cycles	<p><b>Diversity:</b> Change occurs in different patterns.</p> <p><b>Cycles:</b> Different patterns of change, or cycles, take place daily and seasonally on Earth.</p>	<p>Living things respond to changes in the Earth's cycles.</p>	<p>The Earth has observable patterns of change. There is a day and night cycle, a seasonal cycle, and also a moon cycle. Patterns of change affect our activities.</p>	<p>We can measure change over time.</p>	<p>Observe changes in an object over time.</p> <p>Draw and compare changes over time based on observations.</p>		
Investigating Weather	<p><b>Diversity:</b> There are different kinds of weather.</p> <p><b>Cycles:</b> There are weather patterns.</p>	<p>Living and nonliving things respond to changes in the weather.</p>	<p>Weather changes all the time.</p> <p>There are different conditions that contribute to weather. They include wind, precipitation, and temperature.</p>	<p>We can measure changes in wind direction, temperature, and rainfall volume.</p>	<p>Observe and record information at different times during the day, the week, and the school year.</p> <p>Compare similarities and differences in the information gathered.</p> <p>Observe and communicate patterns of change.</p>		

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Exploring Plant Life	<p><b>Diversity:</b> There are many different kinds of living things on Earth.</p> <p>Plants are living things.</p> <p><b>Cycles:</b> Plants have a life cycle that includes growing, reproducing, and dying.</p>	<p>Plants are living things. They are made up of different structures such as roots, stems, leaves.</p> <p>All seed-bearing plants have a similar life cycle.</p>	<p>The Earth, its atmosphere, and the sun provide resources for plants to grow and change.</p>	<p>We can measure change in plants as they grow.</p>	<p>Observe patterns of change.</p> <p>Compare objects over time.</p> <p>Communicate observations to others.</p>
Exploring Animal Life	<p><b>Diversity:</b> There are many different kinds of living things on Earth. Animals are living things.</p> <p><b>Cycles:</b> Animals have a life cycle that includes growing, reproducing, and dying.</p>	<p>Animals are living things.</p> <p>Animals have different body parts.</p> <p>Animals have a life cycle that includes growing, reproducing, and dying.</p>	<p>Animals depend on resources to live.</p>	<p>Animals have properties that we can describe.</p>	<p>Observe patterns of change.</p> <p>Compare and sort objects by similarities and differences.</p> <p>Work with peers to observe, record, and communicate observations.</p>
Investigating Garden Homes	<p><b>Diversity:</b> There are many kinds of living things. They make their homes in many different places.</p> <p><b>Cycles:</b> Animals and plants have life cycles. Daily and seasonal changes affect plants and animals.</p>	<p>Living things have different kinds of homes. Living things need homes for shelter, food, and safety.</p>	<p>The garden is home to many living things.</p> <p>The garden provides resources living things need to survive.</p>	<p>We use our senses to observe an object's properties.</p>	<p>Apply and demonstrate observing and comparing skills.</p>

Life Lab Science		Grade 2			Change Around Us		Scope and Sequence	
	Theme Connections	Life Science	Earth Science	Physical Science	Process Skills			
Overview	<p>Change: Living and nonliving things change. There are patterns of change in the natural world. The garden is a model of an environment that is always changing.</p> <p>Living things need resources to survive and change. Resources change as they are used, recycled, or depleted.</p>	<p>Living things can be distinguished from nonliving things.</p> <p>Living things change in patterns called life cycles.</p> <p>Living things need certain resources from their environment to survive and grow.</p>	<p>The Earth, its atmosphere, and the sun provide resources for living things to grow.</p> <p>Nonliving resources go through patterns of change.</p> <p>Humans can conserve and recycle the Earth's limited resources to limit our impact on the environment.</p>	<p>Living and nonliving things have properties that we can observe, define, and record.</p> <p>Water changes form.</p> <p>Air occupies space and has weight. Air moves and changes.</p> <p>Energy changes things.</p> <p>The sun is a source of energy.</p> <p>Change can be measured.</p>	<p>Predicting—Students make simple predictions based on observations.</p> <p>Categorizing—Students learn to categorize observations.</p> <p>Communicating—Students develop communication skills through drawing, writing, and discussing with their peers and teachers.</p>			
Sensing Changes	<p>Change: Living things change and have characteristics that distinguish them from nonliving things.</p>	<p>We use our senses to discover the physical properties of objects, and to determine similarities and differences.</p>	<p>The garden provides resources for things that live there.</p>	<p>Living and nonliving things have properties that we can observe, define, and record.</p>	<p>Sort objects according to common properties.</p> <p>Share ideas and observations.</p>			
Investigating Plants	<p>Change: Plants are living things and need certain resources to grow. Plants change as they grow.</p> <p>There is a pattern of change, or a life cycle, in plant development.</p>	<p>Plants are living things. Plants need certain resources from their environment to grow.</p>	<p>The Earth, its atmosphere, and the sun provide resources such as soil, water, air, and energy for plants to grow.</p>	<p>We can measure changes in plants as they grow.</p>	<p>Describe changes that occur in objects, based on observations.</p> <p>Make simple predictions based on observations.</p> <p>Record information and communicate results.</p>			

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Investigating Water	<p><b>Change:</b> Water changes form.</p> <p>Water goes through a pattern of change called the water cycle.</p> <p>Water is a natural resource needed by all living things.</p>	All living things need water to grow.	<p>Most of Earth is covered by water.</p> <p>Water continually moves through the water cycle.</p>	<p>Water has observable properties. Water changes form, from solid to liquid to gas. Heat energy causes water to change form.</p>	<p>Observe changes.</p> <p>Record predictions about a change based on prior observations.</p> <p>Categorize by similarities and differences.</p> <p>Communicate ideas with peers through writing, drawing, and discussing.</p>		
Investigating Air	<p><b>Change:</b> Air is a non-living resource that living things need.</p> <p>Air changes. Air moves and can move things.</p>	Almost all living things need air to grow.	Air surrounds the Earth.	<p>Air has properties that can be observed and recorded.</p> <p>Air occupies space, and has weight. Air moves and changes; we can measure some changes.</p>	<p>Make a simple prediction about a change based on observations.</p> <p>Categorize according to properties.</p> <p>Communicate ideas with peers through writing, drawing, and discussing.</p>		
Investigating Food	<p><b>Change:</b> Living things need food to grow and stay healthy. Energy in food is changed to energy used to grow and move.</p> <p>Food changes as it is processed.</p>	<p>Food is a resource that humans need. Food comes from plants and animals.</p> <p>Humans get energy and nutrients from food.</p>		<p>Food changes as it is processed.</p> <p>Food gives us energy.</p> <p>Energy is necessary to make things work.</p>	<p>Gather information to make a prediction.</p> <p>Observe changes.</p> <p>Categorize into groups and subgroups.</p> <p>Report ideas as a team.</p>		

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Investigating Food Chains	<p>Change: The garden is an environment that is always changing.</p> <p>There are patterns of change within the garden.</p> <p>Living things change in the garden.</p>	<p>Living things need energy and nutrients to survive. Energy and nutrients are passed through the food chain. Plants make their own food. Animals get food energy by eating plants or other animals.</p>	<p>The physical environment provides resources that living things need.</p>	<p>The sun is a source of energy. Energy is necessary to make things work.</p>	<p>Predict and communicate changes.</p> <p>Categorize living things.</p> <p>Record observations through drawing and writing.</p> <p>Communicate information and results as a group.</p>		
Investigating Resources	<p>Change: Humans use natural resources for many different purposes. Humans change resources as they use them.</p> <p>Natural resources go through patterns of change. The amount of natural resources can change; some natural resources can be used up.</p>	<p>Living things need certain resources to survive and grow.</p> <p>Humans use plants and animals as resources.</p> <p>The Earth has a limited amount of natural resources.</p>	<p>Everything humans use originates from natural resources.</p> <p>Human use of resources affects the physical environment.</p>	<p>We use technology to change resources for our use.</p>	<p>Formulate a testable question.</p> <p>Categorize objects according to their characteristics.</p> <p>Communicate ideas and plans. Record information in writing and drawing.</p>		
Conserving Resources	<p>Change: Resources change as they are processed and used.</p> <p>Humans can change the physical environment.</p> <p>Humans can conserve natural resources.</p>	<p>Living things are interdependent.</p> <p>Human use of resources has an impact on other living things.</p> <p>Wise resource use will save resources for other living things.</p>	<p>Human use of resources has an impact on the physical environment. Humans can conserve and recycle the Earth's limited resources.</p>	<p>Conserving resources saves energy.</p>	<p>Make predictions based on acquired knowledge.</p> <p>Use Guess-Test-Tell to create a class experiment.</p> <p>Develop categories to group objects and events.</p> <p>Record observations in drawing and writing.</p>		

Life Lab Science		Grade 3		How Things Work		Scope and Sequence	
	Theme Connections	Life Science	Earth Science	Physical Science	Process Skills		
Overview	<p><b>Structure-Function:</b> There are many different kinds of structures in the natural world. An object can be examined, described, and classified as a whole or by its parts. Structures are made up of smaller parts. Each part contributes to the way the whole structure works.</p>	<p>Living things have parts that help them survive on Earth. All living things live in habitats that provide for their basic needs. A habitat is a place in the environment that is made up of different parts. It is a structure.</p>	<p>Climate and soil are key parts of the environment. The type of soil and climatic conditions influence what living things can exist in any habitat.</p>	<p>The world is made up of material we call matter. Matter has properties. We can describe it according to its properties.  Forces act on matter and cause motion.</p>	<p>Experimenting— Students experiment using controls as a way to test their predictions via the Guess-Test-Tell approach.  Recording data— Students record data from their experiments, readings, and observations.  Communicating— Students expand their communication skills by writing and presenting results, by doing team projects, and by individual reflection.</p>		
Sensory Explorations	<p><b>Structure-Function:</b> The garden is a structure with many different parts. It is a physical home, or habitat, for many different kinds of living things.</p>	<p>People use their senses to perceive the world. All things are made up of smaller structures that can be observed and studied.  A garden is a kind of habitat that is home to many different living things.</p>	<p>Soil, water, and climate affect which plants grow in the garden and how well they grow.</p>	<p>Matter has observable properties that we can define and record. We use our senses to observe these properties.</p>	<p>Record sensory observations through drawing and writing.  Work in teams to discuss observations and share ideas.  Practice group decision-making.</p>		



Life Lab Science		Grade 3		How Things Work		Scope and Sequence	
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Seeds	<p><b>Structure-Function:</b> A seed is a structure. It is made up of different parts. Seeds can be grouped according to their characteristics.</p>	<p>Seeds are produced by plants. Seeds are structures that enable plants to produce new plants. Seeds have certain requirements for germination; under the right conditions seeds develop into plants. The parts of the seed function so the seed can grow into a plant.</p>	<p>Seeds require certain weather conditions to germinate.</p>	<p>The structure of seeds affects how they can move. Different kinds of seeds travel in different kinds of ways; we can describe the motion and speed of moving seeds.</p>	<p>Record observations through drawing and writing. Practice making predictions. Use Guess-Test-Tell to test a question. Work in teams to discuss and record results, ideas, and questions.</p>		
Soil	<p><b>Structure-Function:</b> Soil has a structure. The parts that make up a soil contribute to its characteristics. The characteristics of a soil influence how well plants grow in it. Soil is a key part of many habitats.</p>	<p>Living things need resources from the environment in order to sustain life and grow. Most plants need soil to grow. Living things exist in the habitats where the things and the conditions they need to survive are found. Plants grow differently in different soils.</p>	<p>Soil has a structure; it is a natural resource that must be used with care. There are many different types of soil. Many of the particles that make up soil are broken-down bits of rock.</p>	<p>Soil is one kind of matter. Soil has properties that we can observe and describe. Soil is classified by texture as sand, silt, or clay. Matter is the name we give to all stuff in our physical world.</p>	<p>Set up and monitor experiments. Record information from experiments. Work in teams to observe, collect data, and make reports.</p>		
Weather and Climate	<p><b>Structure-Function:</b> There are different kinds of weather. Weather patterns make up the climate of different regions. Climate is the average condition of the weather at a place over a period of time.</p>	<p>Living things need resources from the environment in order to sustain life and grow. Climate (temperature, rainfall, drought, frost, etc.) influences which living things can survive in a habitat.</p>	<p>There are different kinds of weather. Weather changes all the time. Weather affects living things. Climate is the daily and seasonal weather that a particular region experiences over a period of time.</p>	<p>We can measure changes in rainfall, temperature, and wind.</p>	<p>Set up and monitor experiments. Record measurements. Record results in graphs and charts. Interpret and present recorded data.</p>		

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Tools	<p><b>Structure-Function:</b> A garden tool is a type of machine. Different garden tools have different structures. A tool/machine can be examined by looking at its parts. The parts perform certain functions.</p>	<p>Our bodies have parts that serve as tools for performing certain functions.</p>	<p>The characteristics of a soil determine what tools are best used to work that soil.</p>	<p>Machines are made of parts that move. Simple machines, such as the lever or wedge, are made of one part. More complex machines are made of combinations of simple machines.</p> <p>Machines make tasks easier by changing the amount of force necessary to do work.</p> <p>Tools do work.</p>	<p>Set up and monitor experiments.</p> <p>Record observations in graphs and charts.</p> <p>Work in teams to develop and present inventions.</p>		
Plants	<p><b>Structure-Function:</b> Plants are structures. Most plants have similar parts, such as roots, stems, and leaves. Each part has a function that contributes to the operation and survival of the plant as a whole. Plants live in habitats and help make habitats suitable for other living things.</p>	<p>Plant parts perform functions that help the plant survive within the environment. Plants have particular tissues, organs, and organ systems that perform specific life functions, and react to light, water, and other stimuli. Plants have characteristics that distinguish them from other living and nonliving things.</p>	<p>Soil is part of a plant's habitat.</p> <p>Plants have certain parts usually found in the soil. Plants use these parts to get water and nutrients from the soil.</p>	<p>Plants are affected by conditions of the physical environment, such as temperature and amount of moisture.</p>	<p>Set up experiments using a control.</p> <p>Monitor experiments and record data over time.</p> <p>Synthesize experimental data and communicate results.</p>		



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Garden Animals	<p><b>Structure-Function:</b> Animals are structures. Animals have different body parts. Each part has a function that contributes to the operation and survival of the animal as a whole. Animals live in habitats that provide for their needs.</p>	<p>Animal parts perform functions that help the animal survive within the environment. Animals have particular tissues, organs, and organ systems that perform specific life functions. Animals have characteristics that distinguish them from other living and nonliving things.</p>	<p>Some animals have parts that allow them to live and move in the soil. They change the soil by living there.</p>	<p>We can describe and categorize the motion of moving objects. Sounds are made by vibrations. Recognizing the sources and understanding the meaning of sounds in our environment is very important for survival.</p>	<p>Design and monitor an experiment with a control. Set up ways to record and report information as a team.</p>		
Habitats	<p><b>Structure-Function:</b> A habitat is made up of different parts. Soil, plants, animals, and climate help shape the habitat of a particular organism. The parts of a habitat function to support the organisms in that habitat. We can describe a habitat according to its characteristics.</p>	<p>Every living thing lives in a habitat that meets its basic needs for survival. Living things in a particular habitat interact with other living things in many ways, depending on each other for food, shelter, and protection. Humans must protect habitats so that the living things in them can survive.</p>	<p>Habitats contain natural resources. Soil is one natural resource. It is a key component of many kinds of habitats. Climate has a key role in determining the characteristics of a habitat.</p>	<p>The physical structure of a habitat determines its environmental conditions, such as temperature and the amount of light and shadow.</p>	<p>Synthesize and apply knowledge using problem-solving, recording, and communication skills.</p>		

# The Life Lab Scope and Sequence— A Full Program of Life, Earth, and Physical Sciences

The Life Lab Science Scope and Sequence demonstrates that Life, Earth, and Physical science concepts are integrated in a systems approach to science. As the garden grows and changes throughout the seasons, it provides a natural laboratory for studying how the science disciplines are interrelated. You will also discover numerous opportunities for integrating science with math, language arts, and social studies.

Life Lab Science		Grade 4	Connections		Scope and Sequence
	Theme/Interactions	Life Science	Earth Science	Physical Science	Process Skills
Overview	Interactions. A system is a web of interactions. An ecosystem is a web of interactions between the living and non living parts of a habitat or an environment. A garden is a managed ecosystem.	Living things depend on non living things and on other living things in their habitats to meet their survival needs. The garden ecosystem is a web of dependent and interdependent interactions.	The resources of the Earth provide the materials needed for the survival of living things. The sun is the primary source of energy for all living things. Water, minerals, and nutrients are resources that cycle through ecosystems.	In each interaction in a system, there is an exchange of materials and/or energy. Inputs to and outputs from a system can be observed and measured. Light energy is the original source of food energy for all living things.	Relating Organizing Measuring Communicating
Interactions	An interaction is a give and take relationship between two things. Interactions can be one-way or two-way	All living things interact with each other and with their environment to obtain the resources they need to survive. We interact with each other through communication and other actions. We use our senses to receive communications.	Soil, water, air and light are resources that most living things depend on for survival.	Matter has properties that can be observed. The physical organization of matter can be changed by interactions with living and nonliving agents and forces.	Observe objects in relationship to each other.  Organize objects/events in naturally occurring order.  Communicate by sharing ideas and listening to others' ideas.

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<b>Habitats</b>	Plants and animals in a habitat interact with each other and respond to the conditions of their habitat.	Plants and animals need energy, air, water, and shelter to survive. Living things use their habitats' resources in different ways and amounts.	Soil is a habitat. The organisms that live in soil and the nutrient cycles that occur in soil can change the habitat.	The amount of light, moisture, and heat helps to determine what lives in a habitat.	Apply classification skills to organize information.  Practice using measurement skills.		
<b>Water Interactions</b>	Water allows things to flow between nonliving and living parts of the garden as it cycles through habitats.	All living things need water. Water moves through all living things, carrying nutrients and/or wastes. Plants transpire water into the air.	Water on Earth travels in cycles from below the surface to the surface to the atmosphere and back. The Earth is the "water planet": Water is present in oceans, rivers, glaciers, soil, clouds, and in all living things.	Water's chemical structure determines its unique properties. Water can exist as a solid, liquid, and gas at the temperatures that support life.	Describe the interactions in the water cycle.  Use measurement tools to gather information and solve a problem.		
<b>Nutrient Interactions</b>	Living things are dependent upon nutrients. Living things obtain nutrients from the soil through direct interactions and through chains of interactions.	Living things need nutrients to grow and survive. Plants take up nutrients as part of the nutrient cycle.	Minerals and organic matter are broken down by weathering and decomposition cycles into substances plants can use as nutrients.	Matter is conserved through natural cycles. As organic matter breaks down by decomposition, heat energy is given off.	Collect and organize data over time.  Relate decomposition to plant and human nutrition.		

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Ecosystems	An ecosystem is a web of interactions. When material or energy inputs change, everything in the web is affected. The living and non living things of the garden, combined, make up the garden ecosystem.	Plants and animals interact in the garden ecosystem. When plants or animals are added to or removed from the garden, other things in the garden will be affected.	In an ecosystem, organisms interact with the physical environment. Water, minerals, and organic matter cycle through ecosystems.	Change in the amount of solar energy that a garden gets affects the garden ecosystem. Energy and matter are transferred among organisms within an ecosystem.	Use tools to gather data over time and organize information into a report.  Communicate information to classmates and develop questioning skills.		
Sustainable Systems	Humans interact with the garden. Garden plants and animals are affected by human efforts to produce food and flowers. A sustainable system conserves and recycles inputs and maintains the structures and organization of the system.	Plants and animals grow well when the resources they need are easily available in their habitats. Through gardening activities, we change the availability of nutrients, water, sunlight, and other plant needs in the garden.	Garden resources need to be recycled to maintain a healthy ecosystem. More solar energy enters the garden during the summer; so, more food energy can be produced at this time. Nutrients and water cycle through a sustainable system.	Changes in inputs and outputs of a system can be measured. A sustainable system is one in which energy and other losses from the system are reduced and/or returned to the system from renewable resources.	Organize data and observations into projects to create a sustainable garden system.		

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	Theme/Interactions	Life Science	Earth Science	Physical Science	Process Skills	
<b>Light Interactions</b>	Earth is a solar powered planet dependent on the sun for light and heat energy. All living things need food energy.	Plants capture light energy from the sun and convert it to food energy and release oxygen. Animals' eyes respond to reflected or emitted light, enabling them to see.	The sun is a star. It is the source of energy for Earth and for other planets in the solar system. Without the sun's energy, there would be no life as we know it on Earth.	Light transfers energy from the source that emits it to the object that absorbs it. Most surfaces reflect, transmit, and absorb some of the light that hits them.	<p>Manipulate a variable to look for relationships.</p> <p>Practice gathering information with measuring tools.</p> <p>Relate properties of light to investigations into how plants and animals use light.</p>	
<b>Food Webs</b>	The animals in a habitat relate to each other through competitive, cooperative, and predation relationships. All of these are interdependent relationships, forming food webs that link organisms.	All animals ultimately depend on plants for their food energy. Some animals eat plants; some eat animals; some eat both; and some are decomposers. Animals that share a common point in the food web may compete with each other for food. Animals at higher levels prey on animals at lower levels.	Decomposition returns nutrients to the soil. It is the key link in nutrient cycling in the soil. Food webs rely on decomposers to recycle nutrients in the soil.	Energy is transferred from the sun to plants, and then animals, through food webs. It takes energy to maintain each level in the food web, therefore only part of the initial energy is passed from one level to another.	<p>Describe the organization of a system and the relationships that make up the system.</p> <p>Use tools and gather data over time.</p>	

## ***The Life Lab Scope and Sequence- A Full Program of Life, Earth, and Physical Sciences***

The Life Lab Science Scope and Sequence demonstrates that Life, Earth, and Physical science concepts are integrated in a systems approach to science. As the garden grows and changes throughout the seasons, it provides a natural laboratory for studying how the science disciplines are interrelated. You will also discover numerous opportunities for integrating science with math, language arts, and social studies.

<b>Life Lab Science</b>		<b>Grade 5</b>		<b>Change Over Time</b>		<b>Scope and Sequence</b>	
	<b>Theme/ Change Over Time</b>	<b>Life Science</b>	<b>Earth Science</b>	<b>Physical Science</b>	<b>Process Skills</b>		
<b>Overview</b>	The earth has changed continuously since its earliest beginnings. In any species there is variation in characteristics. The changing environment determines which variations have the most survival value. Variations that aid in a species' survival and reproduction are most likely to be passed on to the next generation. This process is called adaptation. The gradual change over time of a species is called evolution.	Ecosystems change through time. Species adapt to these changes through natural selection. If a species does not adapt to an ecosystem change, it can become extinct.	The earth's water bodies, atmosphere, and soil have observable characteristics. These characteristics change over days, seasons, and geologic epochs. The changes set the stage for the evolution of life.	Matter has observable properties. Energy is utilized when matter moves or changes. The amount of available heat and light energy from the sun changes throughout the year at a given location on the earth. The transfer of energy causes changes in matter.	Modeling. Synthesizing. Inferring. Communicating.		
<b>Changes</b>	All things—living and non living—change over time. The garden is a living laboratory for observing different ways things change and for considering the causes of change.	Living things change over time. In the garden there are daily and seasonal changes.	Changes in the observable characteristics of the physical environment can be measured.	We use our senses to identify properties. Changes can be measured. Patterns of change can be identified.	Observe. Collect data. Review the scientific method. Practice cooperative listening skills.		



Life Lab Science		Grade 5		Change Over Time		Scope and Sequence	
	Theme/ Change Over Time	Life Science	Earth Science	Physical Science	Process Skills		
<b>Adaptations</b>	Plants and animals are adapted to survive in their particular habitats. These adaptations have developed over many generations.	An adaptation is a trait that enables a living thing to survive. All living things have a variety of adaptations that increase their survival chances in specific environments.	Soil type and climate are two key components of the environment to which a plant or animal is adapted.	Motion is affected by weight, buoyancy, and shape.	Observe. Collect data. Organize data. Communicate observations.		
<b>Energy and Change</b>	Any change in living or non living matter involves a change in energy. The sun is the earth's major source of heat and light energy.	Living things require energy to grow and change.	The sun emits sunlight, which is a major source of heat and light energy. This energy drives many earth processes.	Energy is utilized when matter moves or changes. Heat is a form of energy. When sunlight is absorbed it is transformed into heat. When energy is transformed from one form to another, change occurs in matter.	Infer ideas from data. Create a model from learned concepts. Communicate ideas to group members.		
<b>Seasonal Change</b>	Seasonal changes are the result of the earth's orbit around the sun and the tilt of its axis. Animals and plants have evolved in response to seasonal changes.	Living things must have their survival needs met in their environment. Living things are adapted to seasonal variations in the environment.	Seasons result from the earth's orbit around the sun and the tilt of the earth's axis. The lower the angle of the sun, the less solar energy received per unit of time and area on the earth's surface. The characteristics of seasons vary with latitude.	The sun is a source of energy. This energy is strongest when the angle of sunlight falling on the receiver is most direct. From one season to the next, the amount of available energy from the sun changes at a given location on the earth.	Set up and monitor experiments. Create models to infer information. Synthesize data and propose solutions. Work as a team to present experimental results and conclusions.		
<b>Weather and Climate Changes</b>	Weather in an area changes, typically in a yearly pattern called climate. Climates have changed over long periods of time. Different plants and animals are adapted to different climates.	All organisms are influenced by environmental factors and conditions, and each organism also impacts its environment to some extent. Climate is an important environmental factor, affecting the survival of plants and animals.	Major climatic differences are due to the orientation of the earth to the sun, which causes the regions of the earth to be heated differently. In addition, complex interactions between earth's air, water, and land masses affect the climates of different regions.	Gas molecules push against the things they touch. This is called air pressure. Air flows from areas of higher pressure to areas of lower pressure. Wind results from differences in air pressure and from the rotation of the earth.	Create and use tools for measurement. Use maps as models to infer information. Synthesize and analyze data. Work as a team to synthesize results.		

Life Lab Science		Grade 5		Change Over Time		Scope and Sequence	
	Theme/ Change Over Time	Life Science	Earth Science	Physical Science	Process Skills		
<b>Soil Changes</b>	Soil types have evolved over tens of thousands of years, through a variety of biological, geological, and chemical processes.	Living things in soil have characteristics that enable them to survive in that environment. These characteristics are examples of adaptations evolved over time. Living things interact with the soil environment over time and can change it.	Soil has evolved as a result of many physical and chemical forces, including weathering of rocks, erosion, and decomposition of organic material.	Physical processes such as freezing and thawing, heating and cooling, and the action of running water, ice, and wind contribute to soil formation and erosion.	Develop models for experiments. Synthesize data. Propose solutions based on data. Work as a team to present results.		
<b>Growing Together</b>	Plants and animals pass traits from generation to generation. Certain individual organisms have traits that make them more likely to survive and reproduce. Over time, species adapt to other species that they interact with. This is called co-evolution. Plants and animals evolve together in a habitat.	Species that share a habitat co-evolve with each other, forming various interdependencies. They interact in many ways; these interactions include symbiosis, predator-prey interactions, and competition.	Organisms that have co-evolved may help each other survive in a broader range of environments than either species could survive in separately. Change in environmental factors is an important pressure on plants and animals and their survival.	Adaptations, such as the size, shape, weight, and characteristic movements of an organism, are functions of physical constraints and forces.	Apply concepts to observations in nature. Infer change over time from observations.		
<b>Change Over Time</b>	The earth has changed continuously since its earliest beginnings. These changes set the stage for the evolution of life.	Living things change over time. Different kinds of changes occur over different scales of time. For example, it may take millions of years for a new species to evolve, but a few seconds for a single plant to be devoured by a deer.	The earth changes over time. Climates change, land masses move, and mountains rise. The geologic time scale is used to place geologic events in a time sequence.	Changes can be categorized by their characteristics. Different tools are used to measure changes over different lengths of time.	Create timelines to measure different lengths of time. Synthesize data onto timelines. Infer patterns of change over time. Communicate concepts learned throughout the year.		