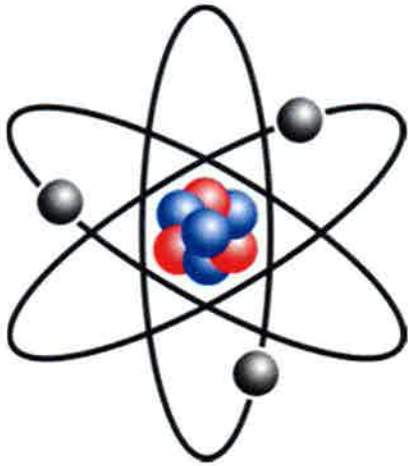
K-12 Science Curriculum
SAU 85
Sunapee School District



Earth and Space Science

	Kindergarten	
Earth and Space Science		
Standards	**Essential Questions**	**Unit**
ESS1.1.1 - 1. ATMOSPHERE, CLIMATE, & WEATHER- Recognize that weather conditions change frequently, and that weather patterns change over the seasons.	How do we know fall is here?	Autumn
ESS1.1.2 - Recognize that weather conditions change frequently, and that weather patterns change over the seasons.		
ESS1.5.1 - PROCESSESS & RATES OF CHANGE- Recognize that some changes are too slow or too fast to be easily observed.		
ESS4.2.1 - TOOLS- Recognize, and with assistance, safely demonstrate the use of tools to gather data and extend the senses, such as thermometers, hand lens and balances.		
ESS2.2.1 - ENERGY- Recognize that the light and heat the Sun provides to the Earth is necessary for life.	How does a pumpkin grow?	Pumpkins
ESS4.3.B.2 - ENVIRONMENTAL CHANGE- Identify environments that are natural, such as a forest, meadow, or mountains and those that have been built or modified by people, including cities, roads, farms, and houses.	What do animals do in preparation for winter?	Preparing for Winter
ESS1.1.1 - 1. ATMOSPHERE, CLIMATE, & WEATHER- Recognize that weather conditions change frequently, and that weather patterns change over the seasons.	What is winter? Why do we have seasons?	Seasons
ESS1.1.2 - Recognize that weather conditions change frequently, and that weather patterns change over the seasons.		
ESS2.2.1 - ENERGY- Recognize that the light and heat the Sun provides to the Earth is necessary for life.	What are the parts of plants? How do plants change as they grow?	Plants
ESS4.2.1 - TOOLS- Recognize, and with assistance, safely demonstrate the use of tools to gather data and extend the senses, such as thermometers, hand lens and balances.		
ESS4.3.A.1 - SOCIAL ISSUES (LOCAL AND GLOBAL)USES OF EARTH MATERIALS - Differentiate	How does recycling benefit the earth?	Recycling

between natural and man-made materials. ESS4.3.B.3 - Describe actions that can help the environment, such as recycling and proper disposal of waste materials.		
	Grade 1	
Earth and Space Science		
Standards	**Essential Question**	**Unit**
ESS4.3.B.3 - Describe actions that can help the environment, such as recycling and proper disposal of waste materials. ESS4.4.1 - CAREER TECHNICAL EDUCATION CONNECTIONS- Recognize that some jobs/careers require knowledge and use of Earth science content and/or skills.	How does recycling make our world a better place? What can we recycle?	Reduce, Reuse, Recycle
ESS1.5.1 - PROCESSESS & RATES OF CHANGE- Recognize that some changes are too slow or too fast to be easily observed.	What information can we gain from fossils? What are some extinct plants and animals that have evolved to today's living things? What can we learn from observing and recording patterns of change? What causes extinction?	Change: Fossils and Extinction
ESS1.2.1 - COMPOSITION & FEATURES- 1. Recognize that solid rocks, soils, and water in its liquid and solid states can be found on the Earth's surface. ESS1.2.2 - Use observable properties, such as color and texture, to classify and organize rocks and minerals ESS1.2.3 - Recognize that Earth materials have a variety of properties, including size, shape, color and texture. ESS1.5.1 - PROCESSESS & RATES OF CHANGE- Recognize that some changes are too slow or too fast to be easily observed. ESS1.6.1 - ROCK CYCLE- Explain that large rocks can be broken down into smaller rocks. ESS1.7.1 - WATER- Recognize that water can be a liquid or a solid, and explain that it can be made to change from one state to the other, but the amount (mass) of water always remains the same in either state. ESS4.3.A.1 - SOCIAL ISSUES (LOCAL AND GLOBAL)USES OF EARTH MATERIALS - Differentiate between natural and man-made materials	How can you classify and organize rocks and minerals? How would you compare a rock to a living thing?	Rocks and Minerals
ESS2.1.1 - EARTH, SUN AND MOON- Recognize the basic patterns of the Sun, including its appearance during the daytime, and how its position in the sky changes	How is Sunapee, NH part of the bigger world? What patterns can you see in every day, night, and year? How is the sun necessary and essential to life on Earth?	Space: Earth, Moon and Stars

through the seasons.		
ESS2.1.2 - Recognize the basic patterns of the Moon, including its appearance sometimes at night and sometimes during the day, and how it appears to change shape through the month.		
ESS2.2.1 - ENERGY- Recognize that the light and heat the Sun provides to the Earth is necessary for life.		
ESS2.4.1 - VIEW FROM EARTH- Recognize the Sun, Moon and stars all appear to move slowly across the sky.		
ESS2.4.2 - Recognize that as the position of the Sun changes in relation to the Earth it creates shadows of varying length and direction.		
ESS2.4.3 - Explain that people should not look directly at the Sun because it is dangerous and may cause injury to the eyes.		
ESS3.2.1 - Recognize there are too many stars to count, and that they are unequal in their brightness.		
ESS4.3.B.2 - ENVIRONMENTAL CHANGE- Identify environments that are natural, such as a forest, meadow, or mountains and those that have been built or modified by people, including cities, roads, farms, and houses.	Why do different habitats have different animals and plants? What can you do to keep the environment and oceans healthy?	Ocean Exploration
ESS4.3.B.3 - Describe actions that can help the environment, such as recycling and proper disposal of waste materials.		
ESS4.4.1 - CAREER TECHNICAL EDUCATION CONNECTIONS- Recognize that some jobs/careers require knowledge and use of Earth science content and/or skills.		
	Grade 2	
Earth and Space Science		
Standards	**Essential Questions**	**Unit**
ESS4.3.B.3 - Describe actions that can help the environment, such as recycling and proper disposal of waste materials.	How can recycling help our planet? How can we reduce waste through conservation, recycling and reuse? What is a carbon footprint?	Recycling
ESS1.1.1 - 1. ATMOSPHERE, CLIMATE, & WEATHER- Recognize that weather conditions change frequently, and that weather patterns change over the seasons.	How are living and non-living things affected by the weather? How does weather change throughout the year? How do weather patterns and temperature change over time? What tools do we use to measure weather changes? How is energy transfer by radiation, conduction, and convection related to changes in weather?	Weather
ESS1.1.2 - Recognize that weather conditions change frequently, and that weather patterns change over the seasons.		
ESS4.2.1 - TOOLS- Recognize, and with assistance, safely demonstrate the use of tools to gather data and extend the senses, such as thermometers, hand lens and		

balances. ESS4.3.B.2 - ENVIRONMENTAL CHANGE- Identify environments that are natural, such as a forest, meadow, or mountains and those that have been built or modified by people, including cities, roads, farms, and houses.		
	Grade 3	
Earth and Space Science		
Standards	**Essential Questions**	**Unit**
ESS4.3.A.2 - Provide examples of technology that have changed the environment and explain whether the effect had a positive or negative impact. ESS4.3.A.3 - Explain how to dispose of waste so that it does not harm the environment. ESS4.4.1 - CAREER TECHNICAL EDUCATION CONNECTIONS- Identify some jobs/careers that require knowledge and use of Earth science content and/or skills.	How do people take responsibility for the part of the community that includes trees? How do trees' adaptations affect their ability to survive? How does a tree represent the health of the environment? How is a tree's life cycle similar or different from the life cycle of other organisms? What is a tree's role/job in its ecosystem?	Tree Life Cycle and Environment
ESS1.1.1 - ATMOSPHERE, CLIMATE, & WEATHER- Explain how water exists in the atmosphere in different forms and describe how it changes from one form to another through various processes, such as freezing, condensation, precipitation and evaporation. ESS1.1.2 - Explain that air surrounds the Earth, it takes up space, and it moves around as wind. ESS1.1.3 - Based on data collected from daily weather observations, describe weather changes or weather patterns. ESS1.1.4 - Explain how the use of scientific tools helps to extend senses and gather data about weather. (ie, weather/wind vane: direction; wind sock: wind intensity; anemometer: speed; thermometer: temperature; meter sticks/rulers: snow depth; rain gauges: rain amount in inches) ESS1.5.2 - Explain how wind, water, or ice shape and reshape the Earth's surface. ESS1.6.4 - Use results from an experiment to draw conclusions about how water interacts with earth materials (e.g., percolation, erosion, frost heaves) ESS1.7.1 - WATER- Recognize and describe the Earth's surface as mostly covered by water. ESS1.7.2 - Explain that most of Earth's water is salt water, which is found in the oceans, and that fresh water is found in rivers, lakes, underground sources, and glaciers.	What is weather and how does the environment cause certain types of weather to exist? Why is it important to track and predict weather and its patterns? How does the water cycle affect weather? How are weather conditions measured? What is the water cycle and all of its functions? How does weather change and shape our earth?	Water and Weather

	Grade 4	
Earth and Space Science		
Standards	**Essential Questions**	**Unit**
ESS1.5.1 - PROCESSESS & RATES OF CHANGE- Identify and describe processes that affect the features of the Earth's surface, including weathering, erosion, deposition of sediment.	What are the parts that make up Lake Sunapee's watershed? How do the living things in our watershed affect Lake Sunapee?	Lake Science
ESS1.6.3 - Identify minerals by their physical properties, such as color, texture and cleavage, and describe simple tests used in the identification process.		
ESS4.3.B.4 - Recognize there are pros and cons to using different types of energy, such as solar energy and fossil fuels, and compare the differences.	How can electricity in circuits produce light, sound, heat, and magnetic effects? What is the relationship between electricity and magnets? What are the properties of insulators and conductors? How do electrical circuits work? What parts are used to create an electrical circuit? Where does energy come from? How is energy transferred?	Energy Through Magnetism and Electricity
ESS1.2.3 - Given information about Earth materials, explain how their characteristics lend themselves to specific uses.	How is each type of rock formed? What causes rocks to break down? What can the formation of rocks and minerals tell us about how the Earth has changed? How do we use rocks, minerals and earth materials in our everyday lives? What is the difference between rocks and minerals? What is the rock cycle How do earth's materials effect the rock cycle and how does the rock cycle effect the earth's materials?	Rocks, Minerals and Earth Materials
ESS1.2.4 - Given certain Earth materials (soils, rocks, or minerals) use physical properties to sort, classify, and/or describe them.		
ESS1.5.2 - Explain how wind, water, or ice shape and reshape the Earth's surface.		
ESS1.6.1 - ROCK CYCLE- Explain that smaller rocks come from the breaking and weathering of larger rocks and bedrock.		
ESS1.6.2 - Distinguish between the three categories of rocks, metamorphic, igneous and sedimentary, and describe the processes that create them.		
ESS1.6.3 - Identify minerals by their physical properties, such as color, texture and cleavage, and describe simple tests used in the identification process.		
ESS1.6.4 - Use results from an experiment to draw conclusions about how water interacts with earth materials (e.g., percolation, erosion, frost heaves)		
ESS1.4.1 - OBSERVATION OF THE EARTH FROM SPACE- Recognize features of the Earth as viewed by astronauts in orbit and as transmitted by scientific	What are the distinct parts of the solar system? What is the earth's interrelationship to the distinct parts of the solar system?	Astronomy

instruments on satellites and spacecraft.	How does the earth's interrelationships affect our daily lives? How does technology help us to understand properties of stars and galaxies?	
ESS2.1.1 - EARTH, SUN AND MOON- Explain that night and day are caused by the Earth's rotation on its axis and that the Earth rotates approximately once, every 24 hours.		
ESS2.1.2 - Describe the Sun as a star.		
ESS2.2.1 - ENERGY- Recognize the Sun provides the light and heat necessary to maintain the temperature of the Earth.		
ESS2.3.1 - SOLAR SYSTEM- 1. Recognize the Moon orbits the Earth.		
ESS2.3.2 - Recognize the Earth is one of a number of planets that orbit the Sun.		
ESS2.4.1 - VIEW FROM EARTH- Recognize that although star patterns seen in the sky appear to move slowly each night from east to west they actually remain the same, and explain why different stars can be seen during different seasons.		
ESS2.4.2 - Explain why the planets look like stars, and why, over a period of time, they appear to wander among the constellations.		
	Grade 5	
Earth and Space Science		
Standards	**Essential Questions**	**Unit**
ESS1.1.1 - ATMOSPHERE, CLIMATE, & WEATHER- Describe and make predictions about local and regional weather conditions using observation and data collection methods.	What makes weather wet and wild? How does the Earth's position in its orbit affect our weather? How is our climate changing and what does that change mean for us? How do Meteorologists determine the weather? How is our water cycle directly related to the weather?	Climate and Weather
ESS1.1.2 - Identify weather patterns by tracking weather related events, such as hurricanes.		
ESS1.1.3 - Explain the composition and structure of the Earth's atmosphere.		
ESS1.1.4 - Describe weather in terms of temperature, wind speed and direction, precipitation, and cloud cover.		
ESS1.1.5 - Describe how clouds affect weather and climate, including precipitation, reflecting light from the sun, and retaining heat energy emitted from the Earth's surface.		
ESS1.4.2 - Explain that satellites can be used to view and track storms and Earth events, such as hurricanes and wild fires.		
ESS1.2.2 - Describe and define the different landforms on the Earth's surface, such as coastlines, rivers, mountains, deltas, canyons, etc.	How do plate tectonics play a role in our Earth's system?	The Restless Earth - Earth's Moving Crust
ESS1.2.3 - Identify and distinguish between various landforms, using a map and/or digital images.		

ESS1.3.2 - Identify connections between fossil evidence and geological events, such as changes in atmospheric composition, movement of tectonic plates, and asteroid/comet impact; and develop a means of sequencing this evidence.		
ESS1.5.2 - Explain how some changes to the Earth's surface happen abruptly, as a result of landslides, earthquakes and volcanic eruptions; while other changes, happen very slowly as a result of weathering, erosions and deposition of sediment caused by waves, wind, water and ice.		
ESS1.5.3 - Recognize that vibrations in materials set up wavelike disturbances that spread away from the source, as with earthquakes.		
ESS1.6.1 - ROCK CYCLE- Explain how soil is formed from combinations of weathered rock and decomposed plant and animal remains, and that it contains living organisms.	In what ways have humans changed the environment and structure of the earth? Have humans interfered with or improved the way the earth functions? What are the ways humans use the earth to ensure our species' survival? What are some of the ways that people of New Hampshire use our natural resources to ensure our survival in this region?	Environmental Issues
ESS1.6.2 - Identify the components of soil and other factors, such as bacteria, fungi and worms, which influence its texture, fertility, and resistance to erosion.		
ESS1.6.3 - Describe the properties of soil, such as color, texture, capacity to retain water, and its ability to support plant life.		

	Grade 6	
Earth and Space Science		
Standards	**Essential Questions**	**Unit**
ESS1.5.1 - PROCESSESS & RATES OF CHANGE- Recognize that things change in steady, repetitive, or irregular ways, or sometimes, in more that one way at the same time.	In what ways have the Earth and its materials changed over long periods of time?	Change on the Earth's Surface
ESS1.5.2 - Explain how some changes to the Earth's surface happen abruptly, as a result of landslides, earthquakes and volcanic eruptions; while other changes, happen very slowly as a result of weathering, erosions and deposition of sediment caused by waves, wind, water and ice.		
ESS1.5.3 - Recognize that vibrations in materials set up wavelike disturbances that spread away from the source, as with earthquakes.		
ESS1.2.1 - COMPOSITION & FEATURES- Differentiate between renewable and non-renewable resources.	In what ways has the Earth's surface changed over time?	Earth's Land and Resources
ESS1.2.2 - Describe and define the different landforms on the Earth's surface, such as coastlines, rivers, mountains, deltas, canyons, etc		
ESS1.2.3 - Identify and distinguish between various landforms, using a map and/or digital images.		
ESS1.3.1 - FOSSILS- Recognize that fossils offer important evidence relating to changes in life forms and environmental conditions over geologic time.	How can fossils provide evidence of the Earth's geological events?	Fossils
ESS1.3.2 - Identify connections between fossil evidence and geological events, such as changes in atmospheric composition, movement of tectonic plates, and asteroid/comet impact; and develop a means of sequencing this evidence.		
ESS1.7.1 - WATER- Explain the properties that make water an essential component of the Earth's system, including solvency and its ability to maintain a liquid state at most temperatures.	How does water quality have an effect on Earth's life forms?	Water
ESS1.7.2 - Explain that water quality has a direct effect on Earth's life forms.		

	Grade 7	
Earth and Space Science		
Standards	**Essential Questions**	**Unit**
ESS2.3.1 - SOLAR SYSTEM- Identify the characteristics and movement patterns of the planets in our Solar System and differentiate between them.	How does the universe "work"?	Astronomy
ESS1.2.2 - Use geological evidence provided to support the idea that Earth's crust/lithosphere is composed of plates that move.	How does the Earth "work"?	Geology
	Grade 8	
Earth and Space Science		
Standards	**Essential Questions**	**Unit**
ESS1.1.1 - ATMOSPHERE, CLIMATE, & WEATHER- Identify and describe the processes of the water cycle and explain their effects on climatic patterns.	What causes our weather?	Weather
	High School	
Earth and Space Science	**Astronomy**	
Standards	**Essential Questions**	**Unit**
ESS3.1.2 - Define a light year.	How is the universe organized?	The Cosmic Landscape
ESS3.3.4 - Based on the nature of electromagnetic waves, explain the movement and location of objects in the universe or their composition (e.g., red shift, blue shift, line spectra).	What is light and what can it tell us?	Properties of Light
ESS4.1.1 - DESIGN TECHNOLOGY- Describe ways in which technology has increased our understanding of the universe.	How can we study the universe?	Telescopes
ESS4.2.1 - TOOLS- Describe the use and benefits of Land based Light Telescopes, radio telescopes, spectrophotometers, satellites, manned exploration, probes, and robots to the study of Earth Space Science.		
ESS1.1.3 - Describe how Earth's atmospheric composition has changed from the formation of the Earth through current time.	How can we use the Earth as a model for studying other planets?	The Earth
ESS1.2.3 - Explain the theory of plate tectonics.		

ESS2.2.2 - Explain how the inclination of incoming solar radiation can impact the amount of energy Earth receives on any given surface area.	How do we measure time?	Keeping Time
ESS1.2.2 - Describe the conditions that enable the Earth to support life, such as the availability of water, the gravitational force, the EM field and the intensity of radiation from the Sun. ESS2.3.1 - SOLAR SYSTEM- Explain how gravitational force influenced the formations of the planets and their moons, and describe how these objects move in patterns under its continued influence. ESS2.3.2 - Explain how the Solar System formed from a giant cloud of gas and debris about 5 billion years ago.	How did the Solar System become as it is now?	Survey of the Solar System
ESS2.1.1 - EARTH SUN MOON- Explain how the Earth, Moon and Sun were formed. ESS2.3.1 - SOLAR SYSTEM- Explain how gravitational force influenced the formations of the planets and their moons, and describe how these objects move in patterns under its continued influence.	What is the Moon like and what caused it to be this way?	The Moon
ESS3.2.1 - STARS AND GALAXIES- Identify and describe the characteristics common to most stars in the universe. ESS3.2.2 - Describe the ongoing processes involved in star formation, their life cycles and their destruction.	What does starlight tell us about the stars?	Measuring the properties of the stars.
ESS2.3.1 - SOLAR SYSTEM- Explain how gravitational force influenced the formations of the planets and their moons, and describe how these objects move in patterns under its continued influence. ESS2.3.2 - Explain how the Solar System formed from a giant cloud of gas and debris about 5 billion years ago.	What are meteors, asteroids and comets and how did they form?	Meteors, Asteroids & Comets
ESS2.2.1 - ENERGY- Identify the Earth's major external source of energy as solar energy. ESS3.2.3 - Explain the relationships between or among the energy produced from nuclear reactions, the origin of elements, and the life cycles of stars.	How does the Sun work?	The Sun

Life Science

	Kindergarten	
Life Science		
Standards	**Essential Questions**	**Unit**
LS1.1.1 - CLASSIFICATION- Differentiate between living and nonliving things, and categorize objects in each group using the significant observable characteristics they share, such as color, shape and size.	What is the life cycle of a monarch caterpillar? Why do animals migrate? How are living things different from non-living things?	Monarch Butterflies
LS1.1.2 - Recognize plants and animals as living things and describe how they are alike and different.		
LS1.2.1 - LIVING THINGS AND ORGANIZATION- Recognize that plants and animals have features that help them survive in different environments		
LS1.3.1 - REPRODUCTION- Recognize that parents and offspring of many species closely resemble one another, and describe the similarities in appearance of given plant and animal families.		
LS1.3.2 - Recognize living things have a life cycle, during which they are born, grow, and die.		
LS2.1.1 - ENVIRONMENT- Recognize that living things can be found almost any place in the world, and that specific types of environments are required to support the many different species of plant and animal life.		
LS2.2.1 - FLOW OF ENERGY- Identify the resources plants and animals need for growth and energy, and describe how their habitat provides these basic needs.		
LS1.1.1 - CLASSIFICATION- Differentiate between living and nonliving things, and categorize objects in each group using the significant observable characteristics they share, such as color, shape and size.	How does a pumpkin grow? What is the difference between a fruit and a vegetable?	Pumpkins
LS1.1.2 - Recognize plants and animals as living things and describe how they are alike and different.		
LS1.2.1 - LIVING THINGS AND ORGANIZATION- Recognize that plants and animals have features that help them survive in different environments.		
LS1.3.2 - Recognize living things have a life cycle, during which they are born, grow, and die.		
LS2.1.3 - Recognize that some plants and animals go through changes in appearance when the seasons change.		
LS2.2.1 - FLOW OF ENERGY- Identify the resources plants and animals need for growth and energy, and describe how their habitat provides these basic needs.		
LS5.4.1 - CAREER TECHNICAL EDUCATION CONNECTIONS- Recognize that some jobs/careers require knowledge and use of life science content and/or skills.		
LS1.2.1 - LIVING THINGS AND ORGANIZATION- Recognize that plants and animals have features that help them survive in different	What do animals do in preparation for winter? How do living things adapt to the environment?	Preparing for Winter

environments. LS2.1.2 - Recognize that animals, including humans, interact with their surroundings using their senses, and that different senses provide different kinds of information. LS2.1.3 - Recognize that some plants and animals go through changes in appearance when the seasons change. LS2.2.1 - FLOW OF ENERGY- Identify the resources plants and animals need for growth and energy, and describe how their habitat provides these basic needs.		
LS2.1.3 - Recognize that some plants and animals go through changes in appearance when the seasons change.	What is winter? Why do we have seasons?	Seasons
LS4.1.2 - Recognize that humans learn from each other in many different ways, such as listening and speaking, watching and imitating. LS4.3.2 - Identify the sense organs, including eyes, ears, nose mouth, and skin, and describe how each can warn an individual about danger. LS5.2.1 - TOOLS- Recognize that some tools, such as magnifiers, balances and thermometers, have special uses, and can help gather information and extend the senses. LS5.4.1 - CAREER TECHNICAL EDUCATION CONNECTIONS- Recognize that some jobs/careers require knowledge and use of life science content and/or skills.	How do people use their senses to learn about the world around them? How can our senses help us to make predictions?	The Five Senses
LS4.2.1 - DISEASE- Recognize that proper nutrition, exercise and rest are all important factors in maintaining good health. LS4.2.2 - Recognize that humans can spread germs that cause disease. LS4.2.3 - Identify and describe the basic personal hygiene habits for maintaining good health, such as washing one's hands with soap and water and brushing one's teeth. LS4.2.4 - Recognize symptoms, such as fever, rashes, coughing and congestion for common illnesses. LS5.4.1 - CAREER TECHNICAL EDUCATION CONNECTIONS- Recognize that some jobs/careers require knowledge and use of life science content and/or skills.	What ways can you keep your body healthy?	A Healthy You
LS1.2.1 - LIVING THINGS AND ORGANIZATION- Recognize that plants and animals have features that help them survive in different environments. LS1.3.2 - Recognize living things have a life cycle, during which they are born, grow, and die. LS2.1.3 - Recognize that some plants and animals go through changes in appearance when the seasons change.	How do plants change as they grow? What are the parts of plants?	Plants
LS1.1.2 - Recognize plants and animals as living things and describe how they are alike and different.	What types of animals live in, on or around our lake? How does the lake habitat provide for the needs of your NH	NH Animals

LS1.2.1 - LIVING THINGS AND ORGANIZATION- Recognize that plants and animals have features that help them survive in different environments.	animal?	
LS1.3.1 - REPRODUCTION- Recognize that parents and offspring of many species closely resemble one another, and describe the similarities in appearance of given plant and animal families.		
LS1.3.2 - Recognize living things have a life cycle, during which they are born, grow, and die.		
LS2.1.2 - Recognize that animals, including humans, interact with their surroundings using their senses, and that different senses provide different kinds of information.		
LS2.1.3 - Recognize that some plants and animals go through changes in appearance when the seasons change.		
LS2.2.1 - FLOW OF ENERGY- Identify the resources plants and animals need for growth and energy, and describe how their habitat provides these basic needs.		
	Grade 1	
Life Science		
Standards	**Essential Questions**	**Unit**
LS1.1.2 - Recognize plants and animals as living things and describe how they are alike and different.	How are insects different from other animals? What is the importance of insects in our world? What makes a social insect different from other insects? Why do different social insects live in different parts of the world?	Classification: Social Insects
LS1.2.1 - LIVING THINGS AND ORGANIZATION- Recognize that plants and animals have features that help them survive in different environments.		
LS1.3.1 - REPRODUCTION- Recognize that parents and offspring of many species closely resemble one another, and describe the similarities in appearance of given plant and animal families.		
LS1.3.2 - Recognize living things have a life cycle, during which they are born, grow, and die.		
LS3.3.2 - Recognize there are different species of living things in various places around the world.		
LS4.1.1 - BEHAVIOR- Recognize and describe how living things respond when exposed to helpful and harmful situations.		
LS5.2.1 - TOOLS- Recognize that some tools, such as magnifiers, balances and thermometers, have special uses, and can help gather information and extend the senses.		
LS1.1.2 - Recognize plants and animals as living things and describe how they are alike and different.	How is the life cycle of an apple tree the same or different than the life cycle of other living things? How would the world be different if we didn't have any trees?	Classification: Apple Trees
LS1.2.1 - LIVING THINGS AND ORGANIZATION- Recognize that plants and animals have features that help them survive in different environments.		
LS1.3.2 - Recognize living things have a life cycle, during which they are born, grow, and die.		
LS2.1.1 - ENVIRONMENT- Recognize that living things can be found almost any place in the world, and that specific types of environments are		

required to support the many different species of plant and animal life. LS2.1.3 - Recognize that some plants and animals go through changes in appearance when the seasons change. LS3.3.2 - Recognize there are different species of living things in various places around the world. LS5.1.1 - DESIGN TECHNOLOGY- Recognize that new products can be made out of natural materials, such as paper from trees, cloth from various plants and animals.		
LS1.1.1 - CLASSIFICATION- Differentiate between living and nonliving things, and categorize objects in each group using the significant observable characteristics they share, such as color, shape and size. LS5.1.1 - DESIGN TECHNOLOGY- Recognize that new products can be made out of natural materials, such as paper from trees, cloth from various plants and animals.	How does recycling make our world a better place? What can we recycle?	Reduce, Reuse, Recycle
LS1.2.1 - LIVING THINGS AND ORGANIZATION- Recognize that plants and animals have features that help them survive in different environments. LS3.1.1 - CHANGE- Recognize that some living things, which lived on Earth long ago, are now extinct, such as dinosaurs, mammoths, giant tree ferns, and horsetail trees. LS3.2.1 - EVOLUTION- Recognize that some plants and animals, which are alive today, are similar to living things, which have become extinct, such as elephants and mammoths. LS5.4.1 - CAREER TECHNICAL EDUCATION CONNECTIONS- Recognize that some jobs/careers require knowledge and use of life science content and/or skills.	What information can we gain from fossils? What are some extinct plants and animals that have evolved to today's living things? What can we learn from observing and recording patterns of change? What causes extinction?	Change: Fossils and Extinction
LS1.1.1 - CLASSIFICATION- Differentiate between living and nonliving things, and categorize objects in each group using the significant observable characteristics they share, such as color, shape and size. LS5.4.1 - CAREER TECHNICAL EDUCATION CONNECTIONS- Recognize that some jobs/careers require knowledge and use of life science content and/or skills.	How can you classify and organize rocks and minerals? How would you compare a rock to a living thing?	Rocks and Minerals
LS1.1.1 - CLASSIFICATION- Differentiate between living and nonliving things, and categorize objects in each group using the significant observable characteristics they share, such as color, shape and size. LS1.1.2 - Recognize plants and animals as living things and describe how they are alike and different. LS1.2.1 - LIVING THINGS AND ORGANIZATION- Recognize that plants and animals have features that help them survive in different environments. LS3.3.2 - Recognize there are different species of living things in various places around the world. LS4.1.1 - BEHAVIOR- Recognize and describe how living things respond	Why do different habitats have different animals and plants? What can you do to keep the environment and oceans healthy?	Ocean Exploration

when exposed to helpful and harmful situations.		
	Grade 2	
Life Science		
Standards	**Essential Questions**	**Unit**
LS1.1.1 - CLASSIFICATION- Differentiate between living and nonliving things, and categorize objects in each group using the significant observable characteristics they share, such as color, shape and size.	What can you learn from these animals? How do the life cycle of people and animals differ? How are animals dependent on each other for survival? How do plants and animals interact?	NH Animals
LS1.1.2 - Recognize plants and animals as living things and describe how they are alike and different.		
LS1.2.1 - LIVING THINGS AND ORGANIZATION- Recognize that plants and animals have features that help them survive in different environments.		
LS1.3.1 - REPRODUCTION- Recognize that parents and offspring of many species closely resemble one another, and describe the similarities in appearance of given plant and animal families.		
LS1.3.2 - Recognize living things have a life cycle, during which they are born, grow, and die.		
LS2.1.1 - ENVIRONMENT- Recognize that living things can be found almost any place in the world, and that specific types of environments are required to support the many different species of plant and animal life.		
LS2.1.2 - Recognize that animals, including humans, interact with their surroundings using their senses, and that different senses provide different kinds of information.		
LS2.1.3 - Recognize that some plants and animals go through changes in appearance when the seasons change.		
LS2.2.1 - FLOW OF ENERGY- Identify the resources plants and animals need for growth and energy, and describe how their habitat provides these basic needs.		
LS3.3.2 - Recognize there are different species of living things in various places around the world.		
LS4.1.1 - BEHAVIOR- Recognize and describe how living things respond when exposed to helpful and harmful situations.		
LS4.1.3 - Recognize that humans can gather different kinds of information about an object by adjusting their proximity to it.		
LS4.1.4 - Recognize that some of the things humans can do, such as playing games, reading, and writing, must be learned.	How and why do we take care of our body? How do humans grow and develop?	About Me
LS4.3.1 - HUMAN IDENTITY- Recognize similarities and individual differences among people, and that children closely resemble their parents.		
LS4.3.3 - Recognize that two parents, both a father and mother, are required for father and mother, are required for human reproduction.		
LS4.3.4 - Recognize and describe the human life cycle from birth to old age.		
LS4.3.5 - Recognize that humans need food, water, air, waste removal and a particular range of temperatures in their environment, just as other		

animals do.		
LS5.3.A.1 - SOCIAL ISSUES (LOCAL AND GLOBAL)- MEDICAL TECHNOLOGY- BIOTECHNOLOGY- 1. Recognize that technology is used in medicine to prevent and cure diseases, through vaccinations and medications.		
LS5.3.A.2 - Provide examples from personal experience that illustrate how medicine helps humans recover from illness.		
LS1.2.1 - LIVING THINGS AND ORGANIZATION- Recognize that plants and animals have features that help them survive in different environments.	What is an insect? Why are insects an important part of a habitat?	Insects
LS1.3.1 - REPRODUCTION- Recognize that parents and offspring of many species closely resemble one another, and describe the similarities in appearance of given plant and animal families.		
LS1.3.2 - Recognize living things have a life cycle, during which they are born, grow, and die.		
LS2.1.2 - Recognize that animals, including humans, interact with their surroundings using their senses, and that different senses provide different kinds of information.		
LS2.1.3 - Recognize that some plants and animals go through changes in appearance when the seasons change.		
LS3.3.1 - NATURAL SELECTION- Recognize and describe the similarities and differences in both behavior and appearance of plants and animals.		
LS3.3.2 - Recognize there are different species of living things in various places around the world.		
LS5.2.1 - TOOLS- Recognize that some tools, such as magnifiers, balances and thermometers, have special uses, and can help gather information and extend the senses.		
LS4.1.2 - Recognize that humans learn from each other in many different ways, such as listening and speaking, watching and imitating.	What is a carbon footprint? How can we reduce waste through conservation, recycling and reuse? How can recycling help our planet?	Recycling
	Grade 3	
Life Science		
Standards	**Essential Questions**	**Unit**
LS2.1.1 - ENVIRONMENT- Describe how the nature of an organism's environment, such as the availability of a food source, the quantity and variety of other species present, and the physical characteristics of the environment, affect the organism's patterns of behavior.	How do people take responsibility for the part of the community that includes trees? How do trees' adaptations affect their ability to survive? How does a tree represent the health of the environment? How is a tree's life cycle similar or different from the life cycle of other organisms? What is a tree's role/job in its ecosystem?	Tree Life Cycle and Environment
LS2.2.2 - Recognize that energy is needed for all organisms to stay alive and grow or identify where a plant or animal gets its energy.		
LS2.3.1 - RECYCLING OF MATERIALS- Recognize that plants and animals interact with one another in various ways besides providing food, such as seed dispersal or pollination.		

LS3.1.1 - CHANGE- Provide examples of how environmental changes can cause different effects on different organisms. LS3.1.2 - Provide examples of how an organism's inherited characteristics can adapt and change over time in response to changes in the environment.		
LS1.1.1 - CLASSIFICATION- Recognize and identify the various ways in which living things can be grouped. LS1.1.2 - Sort/classify different living things using similar and different characteristics. Describe why organisms belong to each group or cite evidence about how they are alike or not alike. LS1.2.1 - LIVING THINGS AND ORGANIZATION- Recognize that living organisms have certain structures and systems that perform specific functions, facilitating survival, growth and reproduction. LS1.2.2 - Identify and describe the function of the plant structures responsible for food production, water transport, support, reproduction, growth and protection. LS1.2.3 - Identify and explain how the physical structures of an organism (plants or animals) allow it to survive in its habitat/environment (e.g., roots for water; nose to smell fire). LS1.2.4 - Identify the basic needs of plants and animals in order to stay alive (i.e., water, air, food, space). LS1.3.2 - Recognize that living organisms have life cycles, which include birth, growth and development, reproduction, and death; and explain how these life cycles vary for different organisms. LS1.3.4 - Predict, sequence, or compare the life stages of organisms – plants and animals (e.g., put images of life stages of an organism in order, predict the next stage in sequence, and compare two organisms). LS3.1.1 - CHANGE- Provide examples of how environmental changes can cause different effects on different organisms. LS3.1.2 - Provide examples of how an organism's inherited characteristics can adapt and change over time in response to changes in the environment. LS3.1.3 - Using information (data or scenario), explain how changes in the environment can cause organisms to respond (e.g., survive there and reproduce, move away, die). LS3.2.1 - EVOLUTION- Compare information about fossils to living organisms and other fossils to determine any similarities and differences. LS3.3.1 - NATURAL SELECTION- Recognize that individuals of the same species differ in their characteristics, and explain that sometimes these differences give individuals an advantage in survival and reproduction.	How do biomes affect life? What do animals and biomes need in order to survive? How do humans change biomes? How do the characteristics of plants and animals native to biomes enable them to survive and thrive in the environment? What are the earth's six land biomes and two water biomes and how are they alike and different? What are the different factors that make up various biomes?	Biomes/Habitats

	Grade 4	
Life Science		
Standards	**Essential Questions**	**Unit**
LS4.1.1 - BEHAVIOR- Recognize that an individual organism's behavior is affected by internal cues, such as hunger and thirst; and describe how an organism uses its senses to understand and respond to these cues.	How and why do we take care of our body? How does the human body work? What are the systems and structure of the human body? What would happen if we do not give our body proper nutrition and / or exercise?	Human/Health Body
LS4.1.2 - Recognize that an individual organism's behavior is influenced by external cues, such as seasonal change, and describe how an organism might react, such as migrating or hibernating.		
LS4.1.3 - Recognize behaviors that may be unsafe or unhealthy for themselves and others.		
LS4.2.1 - DISEASE- Explain how the amount of rest and the types of food, exercise and recreation humans choose can influence and affect their well-being.		
LS4.2.2 - Recognize that vitamins and minerals are needed in small amounts and are essential to maintain proper health.		
LS4.2.3 - Explain how proper food preparation and appropriate food handling practices can maintain the safety and quality of food.		
LS4.3.1 - HUMAN IDENTITY- Identify what the physical structures of humans do (e.g., sense organs – eyes, ears, skin, etc.) or compare physical structures of humans to similar structures of animals.		
LS4.3.2 - Distinguish between characteristics of humans that are inherited from parents (i.e., hair color, height, skin color, eye color) and others that are learned (e.g., riding a bike, singing a song, playing a game, reading)		
LS4.3.3 - Recognize the nutritional value of different foods and distinguish between healthy and unhealthy food choices using data gathered from food labels and dietary guidelines, such as the food pyramid.		
LS2.1.1 - ENVIRONMENT- Describe how the nature of an organism's environment, such as the availability of a food source, the quantity and variety of other species present, and the physical characteristics of the environment, affect the organism's patterns of behavior.	What are the parts that make up Lake Sunapee's watershed? How do the living things in our watershed affect Lake Sunapee?	Lake Science
LS2.1.2 - Describe the interaction of living organisms with nonliving things.		
LS2.3.1 - RECYCLING OF MATERIALS- Recognize that plants and animals interact with one another in various ways besides providing food, such as seed dispersal or pollination.		
LS3.1.1 - CHANGE- Provide examples of how environmental changes can cause different effects on different organisms.		
LS1.2.2 - Identify and describe the function of the plant structures responsible for food production, water transport, support, reproduction, growth and protection.	How do living and non-living things interact in a natural community? What characteristics make something living? What is the difference between non-living and dead? How does the climate effect the habitat/plants/animals?	Living and Non Living in an Ecosystem
LS1.2.3 - Identify and explain how the physical structures of an organism (plants or animals) allow it to survive in its habitat/environment (e.g.,		

roots for water; nose to smell fire).	What adaptations allow a plant to survive in a particular environment? How do animal adaptations help animals survive? What are behavioral adaptations animals have to meet their needs?	
LS1.2.4 - Identify the basic needs of plants and animals in order to stay alive (i.e., water, air, food, space).		
LS1.3.4 - Predict, sequence, or compare the life stages of organisms – plants and animals (e.g., put images of life stages of an organism in order, predict the next stage in sequence, and compare two organisms).		
LS2.1.2 - Describe the interaction of living organisms with nonliving things.		
LS2.2.1 - FLOW OF ENERGY- Recognize that the transfer of energy through food is necessary for all living organisms and describe the organization of food webs.		
LS2.2.2 - Recognize that energy is needed for all organisms to stay alive and grow or identify where a plant or animal gets its energy.		
LS2.3.1 - RECYCLING OF MATERIALS- Recognize that plants and animals interact with one another in various ways besides providing food, such as seed dispersal or pollination.		
LS2.3.2 - Describe ways plants and animals depend on each other (e.g., shelter, nesting, food).		
	Grade 5	
Life Science		
Standards	**Essential Questions**	**Unit**
LS2.1.1 - ENVIRONMENT- Identify and describe the factors that influence the number and kinds of organisms an ecosystem can support, including the resources that are available, the differences in temperature, the composition of the soil, any disease, the threat of predators, and competition from other organisms.	In what ways have humans changed the environment and structure of the earth? Have humans interfered with or improved the way the earth functions? What are the ways humans use the earth to ensure our species' survival? What are some of the ways that people of New Hampshire use our natural resources to ensure our survival in this region?	Environmental Issues
LS2.1.2 - Explain that most microorganisms do not cause disease and that many are beneficial to the environment.		
LS2.2.1 - FLOW OF ENERGY- Describe how energy is transferred in an ecosystem through food webs, and explain the roles and relationships between producers, consumers and decomposers.		
LS2.2.2 - Recognize that one of the most general distinctions among organisms is between plants, which use sunlight to make their own food, and animals, which consume energy-rich foods.		
LS2.2.3 - Describe the process of photosynthesis and explain that plants can use the food they make immediately or store it for later use.		
LS2.2.4 - Recognize that energy, in the form of heat, is usually a byproduct when one form of energy is converted to another, such as when living organisms transform stored energy to motion.		
LS2.3.1 - RECYCLING OF MATERIALS- 1. Define a population as all individuals of a species that exist together at a given place and time, and explain that all populations living together in a community, along with the physical factors with which they interact, compose an ecosystem.		
LS2.3.2 - Identify and describe the ways in which organisms interact and depend on one another in an ecosystem, using food webs.		

LS2.3.3 - Explain how insects and various other organisms depend on dead plant and animal matter for food, and describe how this process contributes to the system.		
LS5.1.1 - DESIGN TECHNOLOGY- Recognize that an agricultural system is designed to maximize the use of all the elements in the system, including using plants for food, oxygen, for the filtration of air and water, and for making compost.		
LS5.2.1 - TOOLS- Demonstrate the appropriate use of tools, such as thermometers, probes, microscopes and computers to gather, analyze and interpret data in the life sciences.		
LS5.3.A.4 - Identify and describe some of the processes and systems used to grow food in New Hampshire, including irrigation, pest control and harvesting.		
LS1.0 - All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).	What do plants give back to the environment that is considered either helpful or harmful?	Photosynthesis and the transfer of energy
	What do plants need from their environment for survival?	
	How are plants different from other living organisms in the way they get their energy?	

	Grade 6	
Life Science		
Standards	**Essential Questions**	**Unit**
LS1.1.1 - CLASSIFICATION- Identify ways in which living things can be grouped and organized, such as taxonomic groups of plants, animals and fungi.	What are the identifiable characteristics that allow for survival in all living organisms?	Living Organisms
LS1.1.2 - Categorize organisms into kingdoms that are currently recognized, according to shared characteristics.		
LS1.2.1 - LIVING THINGS & ORGANIZATION- Recognize that all living things are composed of cells, and explain that while many organisms are single celled, such as yeast, others, including humans, are multicellular.		
LS1.2.3 - Recognize that cells use energy obtain from food, to conduct the functions necessary to sustain life, such as cell growth.		
LS1.2.4 - Recognize and describe the hierarchical organization of living systems, including cells, tissues, organs, organ systems, whole organisms, and ecosystems.		
LS1.2.5 - Explain that multicellular organisms have specialized cells, tissues, organs and organ systems that perform certain necessary functions, including digestion, respiration, reproduction, circulation, excretion, movement, control and coordination and protection from disease.		
LS2.1.1 - ENVIRONMENT- Identify and describe the factors that influence the number and kinds of organisms an ecosystem can support, including the resources that are available, the differences in temperature, the composition of the soil, any disease, the threat of predators, and competition from other organisms.	What factors affect the types of organisms an ecosystem can support?	Ecosystems
LS2.1.2 - Explain that most microorganisms do not cause disease and that many are beneficial to the environment.		
LS2.1.1 - ENVIRONMENT- Identify and describe the factors that influence the number and kinds of organisms an ecosystem can support, including the resources that are available, the differences in temperature, the composition of the soil, any disease, the threat of predators, and competition from other organisms.	What environmental factors are important to support marine life?	Nature's Classroom
LS2.1.2 - Explain that most microorganisms do not cause disease and that many are beneficial to the environment.		
LS3.1.1 - CHANGE- Provide examples of how all organisms, including humans, impact their environment and explain how some changes can be detrimental to other organisms.	How do groups of organisms show evidence of change over time? What ways do organisms interact with their environment?	Change in Environment and Organisms
LS3.1.2 - Explain how changes in environmental conditions can affect the survival of individual organisms and the entire species.		

LS3.2.1 - EVIDENCE OF EVOLUTION- Describe the fundamental concepts related to biological evolution, such as biological adaptations and the diversity of species.	How does the diversity of species and biological adaptations support the theory of evolution?	Evolution
LS3.3.1 - NATURAL SELECTION- Recognize that there are genetic variations among individuals in groups of organisms and provide examples of how these variations affect the survival of an organism.		
LS3.3.2 - Recognize that only organisms that are able to reproduce can pass on their genetic information to the next generation.		
LS4.1.1 - BEHAVIOR- Recognize that learning requires more than just storage and retrieval of information and that prior knowledge needs to be tapped in order to make sense out of new experiences or information.	In what ways are humans unique among Earth's life forms?	Human Behavior and Judgment
LS4.1.2 - Explain that people can learn about others from direct experience, from the media, and from listening to others talk about their life and work.		
LS4.1.3 - Provide examples of how humans make judgments about new situations based on memories of past experiences.		
LS4.3.1 - HUMAN IDENTITY- 1. Recognize that the length and quality of human life are influenced by many factors, including sanitation, diet, medical care, gender, genes, environmental conditions, and personal health behaviors.	What are the different factors that affect the length and quality of human life?	Human Identity
LS4.2.1 - DISEASE- Explain that the human body has ways to defend itself against disease causing organisms and describe how defenders, including tears, saliva, the skin, some blood cells and stomach secretions support the defense process.	Does keeping your body strong and healthy improve your defense against germs?	Human Disease
LS4.2.2 - Recognize that there are some diseases that human beings can only get once, and explain how many diseases can be prevented by vaccination.		
LS4.2.3 - Explain how vaccines induce the body to build immunity to a disease without actually causing the disease itself.		
LS4.2.4 - Recognize a healthy body cannot fight all germs that invade it, and explain how some germs interfere with the body's defenses.		
	Grade 7	
Life Science		
Standards	**Essential Questions**	**Unit**
LS2.1.5 - Given a scenario, trace the flow of energy through an ecosystem, beginning with the sun, through organisms in the food web, and into the environment (includes photosynthesis and respiration).	What is "nature" and how does it work?	Ecology
LS1.1.1 - CLASSIFICATION- Recognize that similarities among organisms are found in anatomical features and patterns of development,	What does it mean for living things to be related?	Taxonomy

and explain how these can be used to infer the degree of relatedness among organisms.		
	Grade 8	
Life Science		
Standards	**Essential Questions**	**Unit**
LS1.1.2 - Describe or compare how different organisms have mechanisms that work in a coordinated way to obtain energy, grow, move, respond, provide defense, enable reproduction, or maintain internal balance (e.g., cells, tissues, organs and systems).	What does it mean to be alive?	Cells
LS1.2.1 - LIVING THINGS & ORGANIZATION- Identify the functions of the human body's systems, including digestion, respiration, reproduction, circulation, excretion, movement, control and coordination and protection from disease, and describe how they interact with one another.	How are living systems organized?	Anatomy
LS1.3.7 - Using data provided, select evidence that supports the concept that genetic information is passed on from both parents to offspring.	What does it mean for living things to be related?	Genetics & Genomics
	High School	
Life Science	Ornithology	
Standards	**Essential Questions**	**Unit**
LS1.1.1 - CLASSIFICATION- Describe how organisms are classified into a hierarchy of groups and subgroups, which are based on similarities that reflect their evolutionary relationships.	What is a bird? How are birds diverse?	The Diversity of Birds
LS3.3.2 - Explain the diversity and unity of past and present life forms on Earth using currently accepted theories.		
LS3.2.4 - Explain evolution in terms of how the Earth's present-day life forms evolved from earlier, distinctly different species as a consequence of the interactions of (1) the potential for a species to increase its numbers, (2) the genetic variability of offspring due to mutation and recombination of genes, (3) a finite supply of the resources required for life, and (4) the ensuing selection.	How did birds arise on Earth? How did birds develop flight?	The History of Birds
LS3.3.1 - NATURAL SELECTION- Explain the concept of natural selection.		
LS1.1.1 - CLASSIFICATION- Describe how organisms are classified into a hierarchy of groups and subgroups, which are based on similarities that reflect their evolutionary relationships.	How are birds classified into groups? What does the classification of birds tell us about their evolutionary relationships?	Avian Systematics
LS3.2.6 - Given information about living or extinct organisms, cite evidence to explain the frequency of inherited characteristics of organisms in a population, OR explain the evolution of varied structures (with defined functions) that affected the organisms' survival in a specific		

environment (e.g., giraffe, wind pollination of flowers).		
LS1.2.3 - Recognize how an organism's organization and complexity accommodate its need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain it. LS3.2.6 - Given information about living or extinct organisms, cite evidence to explain the frequency of inherited characteristics of organisms in a population, OR explain the evolution of varied structures (with defined functions) that affected the organisms' survival in a specific environment (e.g., giraffe, wind pollination of flowers).	What is the purpose of feathers? How are feathers adapted to fill specific needs?	Feathers
LS1.2.3 - Recognize how an organism's organization and complexity accommodate its need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain it. LS4.1.2 - Describe how the functions of all the human body systems are interrelated at a chemical level and how they maintain homeostasis.	How does bird physiology compare to human physiology? How are birds adapted to various lifestyles and environments?	Bird Physiology
LS1.2.3 - Recognize how an organism's organization and complexity accommodate its need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain it.	How are birds able to fly? How are birds adapted to flight?	Flight
LS3.1.1 - CHANGE- Identify ways humans can impact and alter the stability of ecosystems, such as habitat destruction, pollution, and consumption of resources; and describe the potentially irreversible effects these changes can cause. LS3.1.3 - Analyze the aspects of environmental protection, such as ecosystem protection, habitat management, species conservation and environmental agencies and regulations; and evaluate and justify the need for public policy in guiding the use and management of the environment .	What is the status of existing bird populations? What are the threats to avian biodiversity? What is being done to conserve the world's birds?	Conservation
LS3.2.2 - Recognize that the abilities and behaviors an organism has, and likelihood of its survival strongly depend on its heritable characteristics, which can be biochemical and anatomical. LS4.3.3 - Explain how the immune system, endocrine system, or nervous system works and draw conclusions about how systems interact to maintain homeostasis in the human body.	How do birds perceive the world? What evidence is there for avian intelligence?	Senses, Brains, and Intelligence
LS1.1.1 - CLASSIFICATION- Describe how organisms are classified into a hierarchy of groups and subgroups, which are based on similarities that reflect their evolutionary relationships. LS3.1.1 - CHANGE- Identify ways humans can impact and alter the stability of ecosystems, such as habitat destruction, pollution, and consumption of resources; and describe the potentially irreversible effects these changes can cause.	What birds share our community?	Bird Identification

	General Biology	
Life Science		
Standards	**Essential Questions**	**Unit**
LS1.1.4 - Differentiate between prokaryotic and eukaryotic cells according to general structure and degrees of complexity.	How do the unique chemical and physical properties of water make life on earth possible? What is the role of carbon in the molecular diversity of life? How do cells synthesize and break down? How doe structures of biologically important molecules (carbohydrates, lipids, proteins, nucleic acids) account for their functions? How do the laws of thermodynamics relate to the biochemical processes that provide energy to living systems? How do enzymes regulate the rate of chemical reactions? How does the specificity of an enzyme depend on its structure? How is the activity of an enzyme regulated?	Molecules and Cells: The Chemistry of Life
LS1.2.1 - LIVING THINGS & ORGANIZATION- Identify the structures of different types of cell parts/organelles and explain the functions they perform.		
LS1.2.2 - Recognize how cell functions are regulated through changes in the activity of the functions performed by proteins, and through the selective expression of individual genes; and explain how this regulation allows cells to respond to their environment and to control and coordinate cell growth and division.		
LS1.2.3 - Recognize how an organism's organization and complexity accommodate its need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain it.		
LS1.2.4 - Explain how the processes of photosynthesis and cellular respiration are interrelated and contribute to biogeochemical cycles.		
LS1.2.5 - Describe the structures of proteins and their role in cell function.		
LS1.2.6 - Describe the chemical reactions involved in cell functions using examples from the nervous, immune and endocrine systems in multicellular animals.		
LS1.2.7 - Recognize that because all matter tends toward more disorganized states, living systems need a continuous input of energy to maintain their chemical and physical organizations.		
LS1.2.8 - Use data and observation to make connections between, to explain, or to justify how specific cell organelles produce/regulate what the cell needs or what a unicellular or multi-cellular organism needs for survival (e.g., protein synthesis, DNA transport, nerve cells)		
LS5.1.1 - DESIGN TECHNOLOGY- Describe ways in which technology has increased our understanding of the life sciences.		
LS5.1.2 - Understand that technology is designed with a particular function in mind, and principles of life science are useful in creating technology for the life sciences.		
LS5.2.1 - TOOLS- Describe the use and benefits of equipment such as, light microscopes, transmission electron microscopes, scanning electron microscopes, spectrophotometers, probes, and robotics to the study of the life sciences.		
LS5.3.A.1 - SOCIAL ISSUES (LOCAL AND GLOBAL)- MEDICAL TECHNOLOGIES- Describe ways technology can support and improve our understanding of environmental issues.		

	Anatomy and Physiology	
Life Science		
Standards	**Essential Questions**	**Unit**
LS1.2.3 - Recognize how an organism's organization and complexity accommodate its need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain it.	Why might it be important to know specific anatomic terms for directions, regions and cavities of the human body?	Human Body Orientation
LS1.2.6 - Describe the chemical reactions involved in cell functions using examples from the nervous, immune and endocrine systems in multicellular animals.	For what reasons might it be essential to have an understanding of how the human body works?	Body Tissues, Membranes and the Integument
LS1.2.8 - Use data and observation to make connections between, to explain, or to justify how specific cell organelles produce/regulate what the cell needs or what a unicellular or multi-cellular organism needs for survival (e.g., protein synthesis, DNA transport, nerve cells)	For which primary reasons is a division of labor important?	Support and Movement
LS3.2.2 - Recognize that the abilities and behaviors an organism has, and likelihood of its survival strongly depend on its heritable characteristics, which can be biochemical and anatomical.	How does the concept of "boundary" explain the importance of membranes and the integument?	Transport and Body Defenses
LS4.1.1 - BEHAVIOR- Recognize that the immune system, endocrine system, and nervous system can affect the homeostasis of an organism.	Why might it be essential to understand how the skeletal, muscular and nervous systems work together?	Taking it in and Releasing
LS4.1.2 - Describe how the functions of all the human body systems are interrelated at a chemical level and how they maintain homeostasis.	Why would it be important to understand how nutrients, hormones, heat, antibodies and respiratory gases move throughout the body?	
LS4.2.1 - DISEASE- Explain that disease in organisms can be caused by intrinsic failures of the system or infection by other organisms, and describe as well as provide examples of how some diseases are caused by: the breakdown in cellular function, congenital conditions, genetic disorders, malnutrition, and emotional health, including stress.	Why should you be concerned with waste?	
LS4.2.2 - Explain that vaccines were developed to reduce or eliminate diseases, and provide examples of how these medical advances have proven to be successful.		
LS4.2.3 - Describe and provide examples of how new medical techniques, efficient health care delivery systems, improved sanitation, and a more complete understanding of the nature of disease provides today's humans a better chance of staying healthier than their forebears.		
LS4.2.4 - Describe how some drugs mimic or block the molecules involved in transmitting nerve or hormone signals and explain how this disturbs the normal operations of the brain and body.		
LS4.2.5 - Explain that gene mutation in a cell can result in uncontrolled division, which is called cancer and describe how exposure of cells to certain chemicals and radiation increase mutation, and thus the chance for cancer.		
LS4.3.1 - HUMAN IDENTITY- Describe how the length and quality of human life are influenced by many factors, including sanitation, diet, medical care, gender, genes, and environmental medical care, gender, genes, and environmental conditions and personal health behaviors.		
LS4.3.2 - Explain how the immune system functions to prevent and fight disease.		
LS4.3.3 - Explain how the immune system, endocrine system, or nervous system works and draw conclusions about how systems interact to maintain homeostasis in the human body.		

LS5.1.1 - DESIGN TECHNOLOGY- Describe ways in which technology has increased our understanding of the life sciences.		
LS5.1.2 - Understand that technology is designed with a particular function in mind, and principles of life science are useful in creating technology for the life sciences.		
LS5.2.1 - TOOLS- Describe the use and benefits of equipment such as, light microscopes, transmission electron microscopes, scanning electron microscopes, spectrophotometers, probes, and robotics to the study of the life sciences.		
LS5.3.A.2 - Describe aspects of the medical system available to help people in New Hampshire, including: prevention programs, vaccines and pharmaceuticals, hospitals and rehabilitation facilities.		
LS5.4.1 - CAREER TECHNICAL EDUCATION CONNECTIONS- Explain the kinds of applications of knowledge and skills necessary for jobs/careers specific to the life sciences.		
	Environmental Science	
Life Science		
Standards	**Essential Questions**	**Unit**
LS1.1.3 - Identify plants and animals according to binomial nomenclature.	What is sustainable? How do we form a sustainable society? What methods are most effective for studying an environment?	Ecological Principles
LS1.2.3 - Recognize how an organism's organization and complexity accommodate its need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain it.		
LS1.2.7 - Recognize that because all matter tends toward more disorganized states, living systems need a continuous input of energy to maintain their chemical and physical organizations.		
LS2.1.1 - ENVIRONMENT- Explain how the amount of life an environment can sustain is restricted by the availability of matter and energy, and the ability of the ecosystem to recycle materials.		
LS2.1.2 - Describe how the interrelationships and interdependencies among organisms generate stable ecosystems that fluctuate around a state of rough equilibrium for hundreds or thousands of years.		
LS2.1.3 - Identify the factors in an ecosystem that can affect its carrying capacity.		
LS2.1.4 - Analyze and describe how environmental disturbances, such as climate changes, natural events, human activity and the introduction of invasive species, can affect the flow of energy or matter in an ecosystem.		
LS2.1.5 - Using data from a specific ecosystem, explain relationships or make predictions about how environmental disturbance (human impact or natural events) affects the flow of energy or cycling of matter in an ecosystem.		
LS2.2.1 - FLOW OF ENERGY & RECYCLING OF MATERIALS- Use examples from local ecosystems to describe the relationships among organisms at the different trophic levels		
LS2.2.2 - Explain that as matter and energy flow through different levels of organization in living systems and between living systems and the		

environment, elements, such as carbon and nitrogen, are recombined in different ways.		
LS2.2.3 - Trace the cycling of matter (e.g., carbon cycle) and the flow of energy in a living system from its source through its transformation in cellular, biochemical processes (e.g., photosynthesis, cellular respiration, fermentation		
LS3.1.2 - Identify ways of detecting, and limiting or reversing environmental damage.		
LS3.3.3 - Recognize how a species chance of survival increases with each variation of an organism within the species, and explain how, in the event of a major global change, the great diversity of species on Earth, the greater the chance for survival of life.		
LS5.2.1 - TOOLS- Describe the use and benefits of equipment such as, light microscopes, transmission electron microscopes, scanning electron microscopes, spectrophotometers, probes, and robotics to the study of the life sciences.		
LS2.1.1 - ENVIRONMENT- Explain how the amount of life an environment can sustain is restricted by the availability of matter and energy, and the ability of the ecosystem to recycle materials.	Why is it important to understand ecosystem functioning?	Ecosystems
LS2.1.2 - Describe how the interrelationships and interdependencies among organisms generate stable ecosystems that fluctuate around a state of rough equilibrium for hundreds or thousands of years.		
LS2.1.3 - Identify the factors in an ecosystem that can affect its carrying capacity.		
LS2.1.4 - Analyze and describe how environmental disturbances, such as climate changes, natural events, human activity and the introduction of invasive species, can affect the flow of energy or matter in an ecosystem.		
LS2.1.5 - Using data from a specific ecosystem, explain relationships or make predictions about how environmental disturbance (human impact or natural events) affects the flow of energy or cycling of matter in an ecosystem.		
LS2.1.6 - Explain or evaluate potential bias in how evidence is interpreted in reports concerning a particular environmental factor that impacts the biology of humans.		
LS2.2.1 - FLOW OF ENERGY & RECYCLING OF MATERIALS- Use examples from local ecosystems to describe the relationships among organisms at the different trophic levels.		
LS2.2.2 - Explain that as matter and energy flow through different levels of organization in living systems and between living systems and the environment, elements, such as carbon and nitrogen, are recombined in different ways		
LS2.2.3 - Trace the cycling of matter (e.g., carbon cycle) and the flow of energy in a living system from its source through its transformation in cellular, biochemical processes (e.g., photosynthesis, cellular respiration, fermentation		
LS3.1.1 - CHANGE- Identify ways humans can impact and alter the stability of ecosystems, such as habitat destruction, pollution, and		

consumption of resources; and describe the potentially irreversible effects these changes can cause.		
LS3.1.2 - Identify ways of detecting, and limiting or reversing environmental damage.		
LS3.1.3 - Analyze the aspects of environmental protection, such as ecosystem protection, habitat management, species conservation and environmental agencies and regulations; and evaluate and justify the need for public policy in guiding the use and management of the environment .		
LS3.2.5 - Explain how evidence from technological advances supports or refutes the genetic relationships among groups of organisms (e.g., DNA analysis, protein analysis		
LS3.2.6 - Given information about living or extinct organisms, cite evidence to explain the frequency of inherited characteristics of organisms in a population, OR explain the evolution of varied structures (with defined functions) that affected the organisms' survival in a specific environment (e.g., giraffe, wind pollination of flowers).		
LS3.3.3 - Recognize how a species chance of survival increases with each variation of an organism within the species, and explain how, in the event of a major global change, the great diversity of species on Earth, the greater the chance for survival of life.		
LS5.1.1 - DESIGN TECHNOLOGY- Describe ways in which technology has increased our understanding of the life sciences.		
LS5.1.2 - Understand that technology is designed with a particular function in mind, and principles of life science are useful in creating technology for the life sciences.		
LS5.2.1 - TOOLS- Describe the use and benefits of equipment such as, light microscopes, transmission electron microscopes, scanning electron microscopes, spectrophotometers, probes, and robotics to the study of the life sciences.		
LS5.3.A.1 - SOCIAL ISSUES (LOCAL AND GLOBAL)- MEDICAL TECHNOLOGIES- Describe ways technology can support and improve our understanding of environmental issues.		
LS5.3.A.4 - Explain how advances in agriculture made using biotechnology have directly affected the food production over the past 100 years, and that this change has profoundly affected societies all over the globe, making larger populations and urban centers a possibility.		
LS2.1.1 - ENVIRONMENT- Explain how the amount of life an environment can sustain is restricted by the availability of matter and energy, and the ability of the ecosystem to recycle materials.	Is limiting population growth a key factor in protecting the global environment? Is it time to revive nuclear power?	Populations and Resources
LS2.1.2 - Describe how the interrelationships and interdependencies among organisms generate stable ecosystems that fluctuate around a state of rough equilibrium for hundreds or thousands of years.		
LS2.1.3 - Identify the factors in an ecosystem that can affect its carrying capacity.		
LS2.1.4 - Analyze and describe how environmental disturbances, such		

as climate changes, natural events, human activity and the introduction of invasive species, can affect the flow of energy or matter in an ecosystem.		
LS2.1.5 - Using data from a specific ecosystem, explain relationships or make predictions about how environmental disturbance (human impact or natural events) affects the flow of energy or cycling of matter in an ecosystem.		
LS2.1.6 - Explain or evaluate potential bias in how evidence is interpreted in reports concerning a particular environmental factor that impacts the biology of humans.		
LS2.2.1 - FLOW OF ENERGY & RECYCLING OF MATERIALS- Use examples from local ecosystems to describe the relationships among organisms at the different trophic levels.		
LS2.2.2 - Explain that as matter and energy flow through different levels of organization in living systems and between living systems and the environment, elements, such as carbon and nitrogen, are recombined in different ways.		
LS2.2.3 - Trace the cycling of matter (e.g., carbon cycle) and the flow of energy in a living system from its source through its transformation in cellular, biochemical processes (e.g., photosynthesis, cellular respiration, fermentation		
LS3.1.1 - CHANGE- Identify ways humans can impact and alter the stability of ecosystems, such as habitat destruction, pollution, and consumption of resources; and describe the potentially irreversible effects these changes can cause.		
LS3.1.2 - Identify ways of detecting, and limiting or reversing environmental damage.		
LS3.1.3 - Analyze the aspects of environmental protection, such as ecosystem protection, habitat management, species conservation and environmental agencies and regulations; and evaluate and justify the need for public policy in guiding the use and management of the environment .		
LS3.2.5 - Explain how evidence from technological advances supports or refutes the genetic relationships among groups of organisms (e.g., DNA analysis, protein analysis		
LS3.2.6 - Given information about living or extinct organisms, cite evidence to explain the frequency of inherited characteristics of organisms in a population, OR explain the evolution of varied structures (with defined functions) that affected the organisms' survival in a specific environment (e.g., giraffe, wind pollination of flowers).		

	AP Biology	
Life Science		
Standards	**Essential Questions**	**Unit**
LS1.1.4 - Differentiate between prokaryotic and eukaryotic cells according to general structure and degrees of complexity.	Why do biologists identify ***cells*** as the structural and functional units of life?	Molecules and Cells
LS1.2.1 - LIVING THINGS & ORGANIZATION- Identify the structures of different types of cell parts/organelles and explain the functions they perform.	How do chemical and physical changes govern cellular processes?	
LS1.2.2 - Recognize how cell functions are regulated through changes in the activity of the functions performed by proteins, and through the selective expression of individual genes; and explain how this regulation allows cells to respond to their environment and to control and coordinate cell growth and division		
LS1.2.3 - Recognize how an organism's organization and complexity accommodate its need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain it.		
LS1.2.4 - Explain how the processes of photosynthesis and cellular respiration are interrelated and contribute to biogeochemical cycles.		
LS1.2.5 - Describe the structures of proteins and their role in cell function.		
LS1.2.6 - Describe the chemical reactions involved in cell functions using examples from the nervous, immune and endocrine systems in multicellular animals.		
LS1.2.7 - Recognize that because all matter tends toward more disorganized states, living systems need a continuous input of energy to maintain their chemical and physical organizations.		
LS1.2.8 - Use data and observation to make connections between, to explain, or to justify how specific cell organelles produce/regulate what the cell needs or what a unicellular or multi-cellular organism needs for survival (e.g., protein synthesis, DNA transport, nerve cells)		
LS3.3.4 - Analyze present day data and research in areas, including antibiotic resistance in bacteria, changes in viral genomes, such as bird flu, DNA sequencing, and relate it to the concepts of natural selection.		
LS5.1.1 - DESIGN TECHNOLOGY- Describe ways in which technology has increased our understanding of the life sciences.		
LS5.1.2 - Understand that technology is designed with a particular		

function in mind, and principles of life science are useful in creating technology for the life sciences.		
LS5.2.1 - TOOLS- Describe the use and benefits of equipment such as, light microscopes, transmission electron microscopes, scanning electron microscopes, spectrophotometers, probes, and robotics to the study of the life sciences.		
LS5.3.A.1 - SOCIAL ISSUES (LOCAL AND GLOBAL)- MEDICAL TECHNOLOGIES- Describe ways technology can support and improve our understanding of environmental issues.		
LS1.3.1 - REPRODUCTION- Describe the chemical and structural properties of DNA and explain its role in identifying the characteristics of an organism.	How do biologists explain the passage of structural and functional information from one generation to the next? How does change occur over time?	Heredity and Evolution
LS1.3.2 - Recognize that new heritable characteristics can only result from new combinations of existing genes or from mutations of genes in an organism's sex cells, and explain why other changes in an organism cannot be passed on.		
LS1.3.4 - Explain or justify with evidence how the alteration of the DNA sequence may produce new gene combinations that make little difference, enhance capabilities, or can be harmful to the organism (e.g., selective breeding, genetic engineering, mutations).		
LS3.2.1 - EVIDENCE OF EVOLUTION- Explain the currently accepted theory for the development of life on Earth, including the history of its origin and the evolutionary process.		
LS3.2.2 - Recognize that the abilities and behaviors an organism has, and likelihood of its survival strongly depend on its heritable characteristics, which can be biochemical and anatomical.		
LS3.2.3 - Explain the contributions of Darwin, Malthus, Wallace and Russell to the advancement of life science.		
LS3.2.4 - Explain evolution in terms of how the Earth's present-day life forms evolved from earlier, distinctly different species as a consequence of the interactions of (1) the potential for a species to increase its numbers, (2) the genetic variability of offspring due to mutation and recombination of genes, (3) a finite supply of the resources required for life, and (4) the ensuing selection.		
LS3.3.1 - NATURAL SELECTION- Explain the concept of natural selection.		
LS3.3.2 - Explain the diversity and unity of past and present life forms on Earth using currently accepted theories.		

LS3.3.3 - Recognize how a species chance of survival increases with each variation of an organism within the species, and explain how, in the event of a major global change, the great diversity of species on Earth, the greater the chance for survival of life.		
LS3.3.4 - Analyze present day data and research in areas, including antibiotic resistance in bacteria, changes in viral genomes, such as bird flu, DNA sequencing, and relate it to the concepts of natural selection.		
LS3.3.5 - Identify and describe ways genes may be changed and combined to create genetic variation within a species.		
LS3.3.6 - Explain that gene mutations and new combinations may have a variety of effects on the organism, including positive and negative ones, or none at all.		
LS3.3.7 - Explain the concepts of Mendelian genetics.		
LS3.3.7 - Explain the concepts of Mendelian genetics.		
LS3.3.8 - Use pedigree charts and Punnet Squares to determine patterns of inheritance.		
LS3.3.9 - Given a scenario, provide evidence that demonstrates how sexual reproduction results in a great variety of possible gene combinations and contributes to natural selection (e.g., Darwin's finches, isolation of a species, Tay Sach's disease).		
LS4.2.4 - Describe how some drugs mimic or block the molecules involved in transmitting nerve or hormone signals and explain how this disturbs the normal operations of the brain and body.		
LS4.2.5 - Explain that gene mutation in a cell can result in uncontrolled division, which is called cancer and describe how exposure of cells to certain chemicals and radiation increase mutation, and thus the chance for cancer.		
LS5.1.1 - DESIGN TECHNOLOGY- Describe ways in which technology has increased our understanding of the life sciences.		
LS5.1.2 - Understand that technology is designed with a particular function in mind, and principles of life science are useful in creating technology for the life sciences.		
LS5.2.1 - TOOLS- Describe the use and benefits of equipment such as, light microscopes, transmission electron microscopes, scanning electron microscopes, spectrophotometers, probes, and robotics to the study of the life sciences.		
LS5.3.A.4 - Explain how advances in agriculture made using biotechnology have directly affected the food production over the past		

100 years, and that this change has profoundly affected societies all over the globe, making larger populations and urban centers a possibility. LS5.3.B.3 - BIOTECHNOLOGIES- Recognize that biotechnology is used in many areas, such as agriculture, pharmaceuticals, the environment, and genetic engineering, and understand that it requires extensive knowledge of the systems being changed.		
LS1.1.1 - CLASSIFICATION- Describe how organisms are classified into a hierarchy of groups and subgroups, which are based on similarities that reflect their evolutionary relationships. LS1.1.2 - Explain that organisms that possess similar DNA code are more closely related than those in which DNA varies greatly. LS1.1.3 - Identify plants and animals according to binomial nomenclature. LS1.3.3 - Describe the alternation of generations, life cycles with haploid and diploid phases in living organisms, such as bacteria, plants and animals. LS2.1.2 - Describe how the interrelationships and interdependencies among organisms generate stable ecosystems that fluctuate around a state of rough equilibrium for hundreds or thousands of years. LS2.1.3 - Identify the factors in an ecosystem that can affect its carrying capacity. LS2.1.4 - Analyze and describe how environmental disturbances, such as climate changes, natural events, human activity and the introduction of invasive species, can affect the flow of energy or matter in an ecosystem. LS2.1.5 - Using data from a specific ecosystem, explain relationships or make predictions about how environmental disturbance (human impact or natural events) affects the flow of energy or cycling of matter in an ecosystem. LS2.2.1 - FLOW OF ENERGY & RECYCLING OF MATERIALS- Use examples from local ecosystems to describe the relationships among organisms at the different trophic levels. LS2.2.2 - Explain that as matter and energy flow through different levels of organization in living systems and between living systems and the environment, elements, such as carbon and nitrogen, are recombined in different ways.	All organisms exhibit relationships between structure and function: How does this explain the ways in which organisms interact with their environment?	Organisms and Populations

LS2.2.3 - Trace the cycling of matter (e.g., carbon cycle) and the flow of energy in a living system from its source through its transformation in cellular, biochemical processes (e.g., photosynthesis, cellular respiration, fermentation		
LS3.1.1 - CHANGE- Identify ways humans can impact and alter the stability of ecosystems, such as habitat destruction, pollution, and consumption of resources; and describe the potentially irreversible effects these changes can cause. LS3.1.2 - Identify ways of detecting, and limiting or reversing environmental damage.		
LS3.2.5 - Explain how evidence from technological advances supports or refutes the genetic relationships among groups of organisms (e.g., DNA analysis, protein analysis		
LS3.2.6 - Given information about living or extinct organisms, cite evidence to explain the frequency of inherited characteristics of organisms in a population, OR explain the evolution of varied structures (with defined functions) that affected the organisms' survival in a specific environment (e.g., giraffe, wind pollination of flowers).		
LS3.3.3 - Recognize how a species chance of survival increases with each variation of an organism within the species, and explain how, in the event of a major global change, the great diversity of species on Earth, the greater the chance for survival of life.		
LS3.3.4 - Analyze present day data and research in areas, including antibiotic resistance in bacteria, changes in viral genomes, such as bird flu, DNA sequencing, and relate it to the concepts of natural selection.		
LS4.1.1 - BEHAVIOR- Recognize that the immune system, endocrine system, and nervous system can affect the homeostasis of an organism.		
LS4.1.2 - Describe how the functions of all the human body systems are interrelated at a chemical level and how they maintain homeostasis.		
LS4.2.1 - DISEASE- Explain that disease in organisms can be caused by intrinsic failures of the system or infection by other organisms, and describe as well as provide examples of how some diseases are caused by: the breakdown in cellular function, congenital conditions, genetic disorders, malnutrition, and emotional health, including stress.		
LS4.2.2 - Explain that vaccines were developed to reduce or eliminate diseases, and provide examples of how these medical advances have proven to be successful.		
LS4.2.4 - Describe how some drugs mimic or block the molecules involved in transmitting nerve or hormone signals and explain how this disturbs the normal operations of the brain and body.		

LS4.2.6 - Use evidence to make and support conclusions about the ways that humans or other organisms are affected by environmental factors or heredity (e.g., pathogens, diseases, medical advances, pollution, mutations).		
LS4.3.2 - Explain how the immune system functions to prevent and fight disease.		
LS5.2.1 - TOOLS- Describe the use and benefits of equipment such as, light microscopes, transmission electron microscopes, scanning electron microscopes, spectrophotometers, probes, and robotics to the study of the life sciences.		
LS5.3.A.1 - SOCIAL ISSUES (LOCAL AND GLOBAL)- MEDICAL TECHNOLOGIES- Describe ways technology can support and improve our understanding of environmental issues.		
LS5.3.A.4 - Explain how advances in agriculture made using biotechnology have directly affected the food production over the past 100 years, and that this change has profoundly affected societies all over the globe, making larger populations and urban centers a possibility.		

Physical Science

Physical Science		
	Grade 1	
Standards	**Essential Questions**	**Unit**
PS4.2.2 - Demonstrate how to use tools, such as rulers, scales, balances, magnifiers and thermometers to measure properties of objects, such as size, weight, temperature.	How are insects different from other animals? What is the importance of insects in our world? What makes a social insect different from other insects? Why do different social insects live in different parts of the world?	Classification: Social Insects
PS1.1.1 - COMPOSITION- Recognize that objects can be composed of different types of materials, such as wood, metal, and paper.	How does recycling make our world a better place? What can we recycle?	Reduce, Reuse, Recycle
PS1.1.2 - Recognize that objects can be made of one or more materials.		
PS2.1.1 - CHANGE- Describe how the properties of certain materials can change when specific actions are applied to them, such as freezing, mixing, heating, cutting, dissolving and bending.		
SPS.4.1.3 - Using age-appropriate sources such as newspapers, books and websites.		
SPS.4.2.1 - Communication Skills- Communicate ideas and observations through a variety of tools and formats (oral, journal, drawing, projects, multimedia).		
PS1.2.1 - Identify the observable properties of different objects, such as color, size, shape, weight and texture.	How can you classify and organize rocks and minerals? How would you compare a rock to a living thing?	Rocks and Minerals
PS2.3.2 - Explain that the Sun provides the Earth with heat and light.	How is Sunapee, NH part of the bigger world?	Space: Earth, Moon and

PS3.1.1 - FORCES- Describe the properties of magnetism and demonstrate how magnets can be used to move some things without touching them. PS3.1.2 - Describe and demonstrate that things close to the Earth drop to the ground unless something supports them.	What patterns can you see in every day, night, and year? How is the sun necessary and essential to life on Earth?	Stars
PS3.1.1 - FORCES- Describe the properties of magnetism and demonstrate how magnets can be used to move some things without touching them. PS3.2.1 - MOTION- Describe the many different ways things can move, such as in a straight line, zigzag or circular motion, back and forth, and fast and slow. PS3.2.2 - Describe and demonstrate how the position and motion of an object can be changed by applying force, such as pushing and pulling, and explain that the greater the force, the greater the change. PS3.2.3 - Describe the position of an object by referencing its location in relation to another object or background. PS4.1.1 - DESIGN TECHNOLOGY- Recognize that new objects can be made out of physical materials, such as cloth and paper. PS4.2.1 - TOOLS- Identify tools and simple machines, such as a wheel, and explain how they work.	How do simple machines make your life easier?	Simple Machines
	Grade 2	
Physical Science		
Standards	**Essential Questions**	**Unit**
PS2.3.1 - ENERGY- Recognize that sound is produced by vibrating objects and that the pitch of the sound can be varied by changing the rate of vibration. PS2.3.2 - Explain that the Sun provides the Earth with heat and light. PS2.3.3 - Describe that heat can be produced in a variety of ways, such as burning, rubbing, and mixing substances together. PS2.3.4 - Recognize that energy comes from different sources, such as	What is energy? How do people use energy in their lives? What would happen if we did not have any sources of energy?	Energy

electricity and water, and is utilized in many common objects.		
PS4.3.A.1 - SOCIAL ISSUES (LOCAL & GLOBAL)- ENERGY, POWER, AND TRANSPORTATION- Provide examples of how man uses energy in everyday life, such as providing light, warmth in winter, cooling in summer, TVs, computers, telephones, transportation, factories.		
PS4.3.B.3 - MANUFACTURING- Provide examples of items that are manufactured or produced.		
PS4.4.1 - CAREER TECHNICAL EDUCATION CONNECTIONS- Recognize that some jobs/careers require knowledge and use of physical science content and/or skills.		
PS1.1.1 - COMPOSITION- Recognize that objects can be composed of different types of materials, such as wood, metal, and paper.	How can recycling help our planet? How can we reduce waste through conservation, recycling and reuse? What is a carbon footprint?	Recycling
PS1.1.2 - Recognize that objects can be made of one or more materials.		
PS1.2.1 - Identify the observable properties of different objects, such as color, size, shape, weight and texture.		
PS2.1.1 - CHANGE- Describe how the properties of certain materials can change when specific actions are applied to them, such as freezing, mixing, heating, cutting, dissolving and bending.		
PS2.2 - Recognize that not all materials react the same way when an action is applied to them.		
	Grade 3	
Physical Science		
Standards	Essential Questions	Unit
PS3.1.4 - Recognize that the Earth's gravitational force pulls any object toward it.	What is a simple Machine? How does a simple machine make work easier? Where can simple machines be found? How does **force** work to help or hinder simple	Simple Machines Force, Motion and Simple Machines
PS3.2.1 - Use data to predict how a change in force (greater/less) might affect the position, direction of motion, or speed of an object (e.g., ramps and balls)		
PS4.1.1 - DESIGN TECHNOLOGY- Understand that materials are used		

in certain products based on their properties, such as strength and flexibility.	machines?	
PS4.1.2 - Recognize that products are made using a combination of technologies, such as how an escalator uses both a pulley system and an electrical motor.		
PS4.2.1 - TOOLS- Demonstrate how to use tools, such as magnifiers, scales, balances, rulers, and thermometers to gather data and extend the senses.		
PS4.2.2 - Describe how some tools can be used to modify natural materials by processes such as separating, shaping, and joining, to produce new materials.		
PS4.3.A.2 - Explain that manufactured products are designed to solve a problem or meet a need.		
PS4.3.B.3 - MANUFACTURING- Provide an example to illustrate that manufacturing involves changing natural materials into finished products, and explain that this results in the production of a large number of objects that look almost identical.		
PS4.4.1 - CAREER TECHNICAL EDUCATION CONNECTIONS- Identify some jobs/careers that require knowledge and use of physical science content and/or skills.		
	Grade 4	
Physical Science		
Standards	Essential Questions	Unit
PS2.1.1 - CHANGE- Recognize that energy has the ability to create change.	How can electricity in circuits produce light, sound, heat, and magnetic effects? What is the relationship between electricity and magnets? What are the properties of insulators and conductors? How do electrical circuits work? What parts are used to create an electrical circuit? Where does energy come from? How is energy transferred?	Energy Through Magnetism and Electricity
PS2.3.1 - ENERGY- Identify the various forms of energy, such as electrical, light, heat, sound.		
PS2.3.2 - Recognize that electricity in circuits can produce light, heat, sound, and magnetic effects.		
PS2.3.3 - Identify and describe the organization of a simple circuit.		
PS2.3.4 - Differentiate between objects and materials that conduct electricity and those that are insulators of electricity.		
PS2.3.6 - Given a specific example or illustration (e.g., simple closed circuit, rubbing hands together, predict the observable effects of energy (i.e., light bulb lights, a bell rings, hands warm up) (E.g., a test item might ask, "what will happen when...?").		
PS2.3.7 - Use observations of light in relation to other objects/substances to describe the properties of light (can be reflected, refracted, or absorbed).		
PS2.3.8 - Experiment, observe, or predict how heat might move from one object to another.		
PS3.1.1 - FORCES- Recognize that magnets attract certain kinds of other materials and classify objects by those magnets will attract and those they will not.		
PS3.1.2 - Recognize that magnets attract and repel each other.		
PS3.1.3 - Explain that electrically charged material pulls on all other		

materials and can attract or repel other charged materials.		
PS3.1.4 - Recognize that the Earth's gravitational force pulls any object toward it.		
PS3.1.5 - Use observations of magnets in relation to other objects to describe the properties of magnetism (i.e., attract or repel certain objects or has no effect		
	Grade 5	
Physical Science		
Standards	**Essential Questions**	**Unit**
PS1.1.1 - COMPOSITION- Recognize that all matter is composed of minute particles called atoms, and explain that all substances are composed of atoms, each arranged into different groupings.	What is the Periodic Table of elements and how is the Periodic Table like a deck of cards? What would science be like without the Periodic Table? How are our lives influenced by the different states of matter?	Organizing the Periodic Table/Atoms and Bonding
PS1.1.1 - COMPOSITION- Recognize that all matter is composed of minute particles called atoms, and explain that all substances are composed of atoms, each arranged into different groupings.		
PS1.1.2 - Identify elements as substances that contain only one kind of atom and explain that elements do not break down by normal laboratory reactions, such as heating, exposure to electric current, and reaction to acid.		
PS1.1.3 - Recognize that over one hundred elements exist, and identify the periodic table as a tool for organizing the		
PS1.2.1 - PROPERTIES- Identify elements according to their common properties, such as highly reactive metals, less reactive metals, highly reactive non-metals and almost non-reactive gases.		
PS1.2.2 - Identify substances by their physical and chemical properties, such as magnetism, conductivity, density, solubility, boiling and melting points.		
PS2.1.1 - CHANGE- Differentiate between a physical change, such as melting, and a chemical change, such as rusting.		
PS2.2.1 - CONSERVATION- Describe how mass remains constant in a closed system and provide examples relating to both physical and chemical change.		
PS2.3.1 - ENERGY- Explain that the pitch of a sound is dependent on the frequency of the vibration producing it.	How is energy transferred? What tools are used to study sound and light? What is the relationship between all forms of radiant energy? How are sound and light energy the same/different?	Light and Sound
PS2.3.2 - Explain that sound vibrations move at different speeds, have different wavelengths and establish wave-like disturbances that emanate from the source.		
PS2.3.3 - Recognize that energy, in the form of heat, is usually a by- product when one form of energy is changed to another, such as when machines convert stored energy to motion.		

	Grade 6	
Physical Science		
Standards	Essential Questions	Unit
PS3.1.1 - FORCES- Recognize that just as electric currents can produce magnetic forces, magnets can cause electric currents.	How are forces exerted on moving objects?	Forces
PS3.1.2 - Explain that when a force is applied to an object, it reacts in one of three ways: the object either speeds up, slows down, or goes in a different direction.		
PS3.1.3 - Describe the relationship between the strength of a force on an object and the resulting effect, such as the greater the force, the greater the change in motion.		
PS3.2.1 - MOTION- Explain the how balanced and unbalanced forces are related to an object's motion.	How can you determine and object's position by tracking motion over time? How can the motion of an object be described and measured?	Motion
PS3.2.2 - Explain that an object's motion can be tracked and measured over time and that the data can be used to describe its position.		
	Grade 7	
Physical Science		
Standards	Essential Questions	Unit
PS1.1.4 - Differentiate between a mixture and a pure substance.	What is the world made of?	Solutions
PS3.2.1 - MOTION- Explain that an object in motion that is unaffected by a force will continue to move at a constant speed and in a straight line.	How does the universe "work"?	Forces and Motion
	Grade 8	
Physical Science		
Standards	Essential Questions	Unit
PS1.1.1 - COMPOSITION- Explain that atoms often combine to form a molecule or formula unit (crystal).	What is the world made of?	Chemistry

PS2.2.1 - CONSERVATION- Explain the law of conservation of energy.	How do machines work?	Simple Machines
PS2.3.4 - Explain that the human eye can only detect wavelengths of electromagnetic radiation within a narrow range, and explain that the differences of wavelength within that range of visible light are perceived as differences in color.	How are we able to see things?	Light
PS2.1.5 - Given a real-world example, show that within a system, energy transforms from one form to another (i.e., chemical, heat, electrical, gravitational, light, sound, mechanical).	How are we able to hear things?	Sound
	High School	
Physical Science	Astronomy	
Standards	Essential Questions	Unit
PS1.1.1 - COMPOSITION- Recognize and describe the structure of an atom and explain how the major components interact with one another.	How is the universe organized?	The Cosmic Landscape
PS2.3.3 - Describe how the energy associated with individual atoms and molecules can be used to identify the substances they comprise; and explain that each kind of atom or molecule can gain or lose energy only in particular discrete amounts, absorbing and emitting light only at wavelengths corresponding to these amounts.	What is light and what can it tell us?	Properties of Light
PS3.2.2 - Recognize that apparent changes in wavelength can provide information about changes in motion, explain that the observed wavelength of a wave depends upon the relative motion of the source and the observer, and relates these to the differences between shorter and longer wavelengths.		
PS2.3.4 - Explain the range of the electromagnetic spectrum as it relates to both wavelength and energy, and provide examples of practical applications of the different wavelengths in the spectrum.	What does starlight tell us about the stars?	Measuring the Properties of Stars

Physical Science	Ornithology	
Standards	Essential Questions	Unit
PS3.2.1 - MOTION- Interpret and apply the laws of motion to determine the effects of forces on the motion of objects.	How are birds able to fly? How are birds adapted to flight?	Flight
Physical Science	Physical Science	
Standards	Essential Questions	Unit
PS1.2.1 - PROPERTIES- Explain that the physical properties of a compound are determined by its molecular structure and the interactions among the molecules.	What makes elements reactive? Why do elements form compounds?	Chemical Bonds
PS1.2.2 - Determine whether an atom is either electrically neutral or an ion by referring to the its number of electrons.		
PS1.2.3 - Explain how the chemical properties of an element are governed by the electron configuration of atoms, and describe how atoms interact with one another by transferring or sharing the outermost electrons.		
PS2.1.2 - Recognize that atoms interact with one another by transferring or sharing electrons that are furthest from the nucleus and explain that the outer electrons govern the chemical properties of an element.		
PS2.1.3 - Explain that compounds are formed through both ionic and covalent bonding.		
PS2.1.5 - Explain relationships between and among electric charges, magnetic fields, electromagnetic forces, and atomic particles.		
PS2.2.1 - CONSERVATION- Explain that chemical reactions either release or consume energy.		
PS2.2.3 - Recognize that a large number of important reactions involve the transfer of either electrons or hydrogen ions between reacting ions, molecules, or atoms.		
PS1.1.1 - COMPOSITION- Recognize and describe the structure of an atom and explain how the major components interact with one another.	What is the world made of and what holds it together? How does the structure of atoms affect the properties of the material they make up?	Fundamental Particles and Atomic Structure
PS1.1.1 - COMPOSITION- Understand the basic building blocks of matter are quarks and leptons.		
PS1.1.2 - Recognize how elements are arranged in the periodic table,		

and explain how this arrangement illustrates the repeating patterns among elements with similar properties, such as the relationship between atomic number and atomic mass.		
PS1.1.3 - Explain that neutrons and protons are made up of even smaller constituents.		
PS1.1.4 - Define isotopes, recognize that most elements have two or more isotopes, and explain that although the number of neutrons has little affect on how the atom interacts with others, they do affect the mass and stability of the nucleus.		
PS1.1.5 - Scientific thought about atoms has changed over time. Using information (narratives or models of atoms) provided, cite evidence that changed our understanding of the atom and the development of atomic theory.		
PS1.2.2 - Determine whether an atom is either electrically neutral or an ion by referring to the its number of electrons.		
PS1.2.7 - Explain how properties of elements and the location of elements on the periodic table are related.		
PS1.1.1 - COMPOSITION- Recognize and describe the structure of an atom and explain how the major components interact with one another.	How can we describe matter in ways that all scientists will understand?	Matter
PS1.2.6 - Use physical and chemical properties as determined through an investigation to identify a substance.		
PS1.2.1 - PROPERTIES- Explain that the physical properties of a compound are determined by its molecular structure and the interactions among the molecules.	How does the structure of atoms determine an element's physical and chemical properties?	Elements and Their Properties
PS1.2.3 - Explain how the chemical properties of an element are governed by the electron configuration of atoms, and describe how atoms interact with one another by transferring or sharing the outermost electrons.		
PS1.2.6 - Use physical and chemical properties as determined through an investigation to identify a substance.		
PS1.2.5 - Explain that states of matter rely on the arrangement and motion of molecules, and differentiate between the structures of solids, liquids, and gases.	How are mixtures different?	Solutions
PS1.2.6 - Use physical and chemical properties as determined through an investigation to identify a substance.		

PS2.2.3 - Recognize that a large number of important reactions involve the transfer of either electrons or hydrogen ions between reacting ions, molecules, or atoms.	Why are acids found in so many foods? Are all acids bad for humans? Why aren't there as many foods with bases in them?	Acid and Base Chemistry
PS3.2.3 - Apply the concepts of inertia, motion, and momentum to predict and explain situations involving forces and motion, including stationary objects and collisions.	How do we recognize motion? How do we describe and measure motion? What causes motion?	Physics of Motion and Forces
PS2.2.5 - Demonstrate how transformations of energy produce some energy in the form of heat and therefore the efficiency of the system is reduced (chemical, biological, and physical systems)	What is Energy? How is energy used by humans? Describe how work can be converted to energy and vice versa. How is temperature related to the heat of an object?	Energy
PS2.3.1 - ENERGY- Explain that all energy can be considered to be either kinetic energy, potential energy, or energy contained by a field.		
PS2.3.2 - Provide examples of how kinetic and potential energy can be transformed from one to the other.		
PS2.3.6 - Describe the relationship between heat and temperature, explaining that heat energy consists of the random motion and vibrations of atoms, molecules, and ions and that the higher the temperature, the greater the atomic or molecular motion.		
PS4.3.A.1 - SOCIAL ISSUES (LOCAL & GLOBAL)- ENERGY, POWER, AND TRANSPORTATION- Explain that power systems have a source of energy, a process, loads, and some have a feedback system.	What are some different ways we utilize thermal energy? How can we use heat to do work? What happens to materials when they are heated or cooled. Differentiate between conductors and insulators. Describe how various heat engines work.	Using Thermal Energy
PS4.3.A.2 - Demonstrate and explain how an engine converts chemical energy in the form of fuel, into mechanical energy in the form of motion		
PS4.3.A.3 - Calculate the efficiency of an engine, and explain why a perfectly efficient engine is impossible.		
PS3.2.1 - MOTION- Interpret and apply the laws of motion to determine the effects of forces on the motion of objects.	How can we make work easier or faster. Why can't we get more work out of a machine than is put in?	Simple Machines
PS4.3.A.3 - Calculate the efficiency of an engine, and explain why a perfectly efficient engine is impossible.		
PS1.2.5 - Explain that states of matter rely on the arrangement and	Why does hot air rise?	Fluid Dynamics

motion of molecules, and differentiate between the structures of solids, liquids, and gases. PS3.1.8 - Given information (e.g., graphs, data, diagrams), use the relationships between or among force, mass, velocity, momentum, acceleration to predict and explain the motion of objects. PS3.2.1 - MOTION- Interpret and apply the laws of motion to determine the effects of forces on the motion of objects.	Why do boats float? How can airplanes fly? Who let the dogs out? State Bernoulli's principle and relate it to the lift of an aircraft wing.	
PS2.3.9 - Describe how electrons flow easily in some materials, such as metals, whereas in insulating materials, such as glass, they can hardly flow at all. PS3.1.5 - Recognize that electromagnetic forces exist within and between atoms. PS3.1.6 - Recognize that different kinds of materials respond to electric forces in various ways, and differentiate between insulators, semiconductors, conductors and superconductors. PS3.1.7 - Describe the difference between materials that contain equal proportions of positive and negative charges and those that have a very small excess or deficit of negative charges.	What is electricity?	Electricity
Physical Science	Chemistry	
Standards	Essential Questions	Unit
PS1.1.1 - COMPOSITION- Recognize and describe the structure of an atom and explain how the major components interact with one another. PS1.2.1 - PROPERTIES- Explain that the physical properties of a compound are determined by its molecular structure and the interactions among the molecules. PS1.2.5 - Explain that states of matter rely on the arrangement and motion of molecules, and differentiate between the structures of solids, liquids, and gases. PS1.2.6 - Use physical and chemical properties as determined through an investigation to identify a substance. PS1.2.7 - Explain how properties of elements and the location of elements on the periodic table are related.	How do our everyday lives relate to chemistry?	Matter and Change
PS1.1.1 - COMPOSITION- Recognize and describe the structure of an atom and explain how the major components interact with one another.	What is fundamental? How do we learn about particles that are way too small	Atomic Theory

PS1.1.2 - Recognize how elements are arranged in the periodic table, and explain how this arrangement illustrates the repeating patterns among elements with similar properties, such as the relationship between atomic number and atomic mass. PS1.1.3 - Explain that neutrons and protons are made up of even smaller constituents. PS1.1.4 - Define isotopes, recognize that most elements have two or more isotopes, and explain that although the number of neutrons has little affect on how the atom interacts with others, they do affect the mass and stability of the nucleus. PS1.1.5 - Scientific thought about atoms has changed over time. Using information (narratives or models of atoms) provided, cite evidence that changed our understanding of the atom and the development of atomic theory. PS1.1.6 - Model and explain the structure of an atom or explain how an atom's electron configuration, particularly the outermost electron(s), determines how that atom can interact with other atoms. PS1.2.2 - Determine whether an atom is either electrically neutral or an ion by referring to the its number of electrons. PS1.2.4 - Explain that radioactive materials are unstable and undergo spontaneous nuclear reactions, which emit particles and/or wavelike radiation. PS1.2.7 - Explain how properties of elements and the location of elements on the periodic table are related.	to see and exist for only nanoseconds?	
PS1.1.1 - COMPOSITION- Recognize and describe the structure of an atom and explain how the major components interact with one another. PS1.1.2 - Recognize how elements are arranged in the periodic table, and explain how this arrangement illustrates the repeating patterns among elements with similar properties, such as the relationship between atomic number and atomic mass. PS1.1.3 - Identify the sub-orbital shapes and geometric orientations of the orbitals electrons can occupy in atoms. PS1.1.5 - Scientific thought about atoms has changed over time. Using information (narratives or models of atoms) provided, cite evidence that changed our understanding of the atom and the development of atomic theory. PS1.1.6 - Model and explain the structure of an atom or explain how an	How is light made and what determines the colors of it?	Electron Configuration in Atoms

atom's electron configuration, particularly the outermost electron(s), determines how that atom can interact with other atoms. PS1.2.1 - PROPERTIES- Explain that the physical properties of a compound are determined by its molecular structure and the interactions among the molecules. PS1.2.7 - Explain how properties of elements and the location of elements on the periodic table are related.		
PS1.1.1 - COMPOSITION- Recognize and describe the structure of an atom and explain how the major components interact with one another. PS1.1.2 - Recognize how elements are arranged in the periodic table, and explain how this arrangement illustrates the repeating patterns among elements with similar properties, such as the relationship between atomic number and atomic mass. PS1.2.1 - PROPERTIES- Explain that the physical properties of a compound are determined by its molecular structure and the interactions among the molecules. PS1.2.3 - Explain how the chemical properties of an element are governed by the electron configuration of atoms, and describe how atoms interact with one another by transferring or sharing the outermost electrons PS1.2.7 - Explain how properties of elements and the location of elements on the periodic table are related. PS2.1.2 - Recognize that atoms interact with one another by transferring or sharing electrons that are furthest from the nucleus and explain that the outer electrons govern the chemical properties of an element. PS2.1.3 - Explain that compounds are formed through both ionic and covalent bonding.	Why do substance form chemical bonds? Why is it that most substances are compounds rather than elements?	Chemical Bonding
PS1.1.1 - COMPOSITION- Recognize and describe the structure of an atom and explain how the major components interact with one another. PS1.1.2 - Recognize how elements are arranged in the periodic table, and explain how this arrangement illustrates the repeating patterns among elements with similar properties, such as the relationship between atomic number and atomic mass. PS1.1.6 - Model and explain the structure of an atom or explain how an atom's electron configuration, particularly the outermost electron(s), determines how that atom can interact with other atoms.	Why do we categorize substances by their physical and chemical properties?	The Periodic Table

PS1.2.1 - PROPERTIES- Explain that the physical properties of a compound are determined by its molecular structure and the interactions among the molecules. PS1.2.6 - Use physical and chemical properties as determined through an investigation to identify a substance PS1.2.7 - Explain how properties of elements and the location of elements on the periodic table are related.		
PS1.2.1 - PROPERTIES- Explain that the physical properties of a compound are determined by its molecular structure and the interactions among the molecules. PS1.2.2 - Determine whether an atom is either electrically neutral or an ion by referring to the its number of electrons PS1.2.3 - Explain how the chemical properties of an element are governed by the electron configuration of atoms, and describe how atoms interact with one another by transferring or sharing the outermost electrons. PS1.2.6 - Use physical and chemical properties as determined through an investigation to identify a substance.	Why is it helpful to use symbols and formulas in Chemistry?	Chemical Compounds - Names and Formulas
PS1.2.3 - Explain how the chemical properties of an element are governed by the electron configuration of atoms, and describe how atoms interact with one another by transferring or sharing the outermost electrons. PS2.1.1 - CHANGE- Recognize and explain that atoms may be bonded together into molecules or formula units (crystalline solids). PS2.1.2 - Recognize that atoms interact with one another by transferring or sharing electrons that are furthest from the nucleus and explain that the outer electrons govern the chemical properties of an element. PS2.1.3 - Explain that compounds are formed through both ionic and covalent bonding. PS2.2.3 - Recognize that a large number of important reactions involve the transfer of either electrons or hydrogen ions between reacting ions, molecules, or atoms. PS2.3.10 - Using information provided about chemical changes, draw conclusions about the energy flow in a given chemical reaction (e.g., exothermic reactions, endothermic reactions)	How can we tell if a chemical reaction has taken place? What would the world be like if mass was not conserved in reactions?	Chemical Equations and Reactions
PS1.2.5 - Explain that states of matter rely on the arrangement and motion of molecules, and differentiate between the structures of solids, liquids, and gases.	What happens to the particles in matter when factors like temperature, pressure and volume	Physical Characteristics of Gases

PS2.2.4 - Identify the variety of structures that may be formed from the bonding of carbon atoms, and describe their roles in various chemical reactions, including those required for life processes. PS2.3.2 - Provide examples of how kinetic and potential energy can be transformed from one to the other.	change?	
PS2.1.1 - CHANGE- Explain the complete mole concept and identify ways in which it can be used, such as to differentiate between actual and relative mass. PS2.2.1 - CONSERVATION- Explain that chemical reactions either release or consume energy. PS2.2.2 - Explain that chemical reactions can be accelerated by catalysts, such as enzymes.	What does a chemical equation tell us about the quantities of substances in a reaction?	Reaction Stoichiometry
PS1.2.5 - Explain that states of matter rely on the arrangement and motion of molecules, and differentiate between the structures of solids, liquids, and gases PS2.3.6 - Describe the relationship between heat and temperature, explaining that heat energy consists of the random motion and vibrations of atoms, molecules, and ions and that the higher the temperature, the greater the atomic or molecular motion. PS3.2.1 - MOTION- Interpret and apply the laws of motion to determine the effects of forces on the motion of objects.	In order to really quantify how much gas there is in a sample what measurements are easiest to measure and most meaningful? What is the significance of Avagodro's law?	Molecular Composition of Gases.
PS1.2.1 - PROPERTIES- Explain that the physical properties of a compound are determined by its molecular structure and the interactions among the molecules. PS1.2.5 - Explain that states of matter rely on the arrangement and motion of molecules, and differentiate between the structures of solids, liquids, and gases. PS1.2.6 - Use physical and chemical properties as determined through an investigation to identify a substance PS3.2.1 - MOTION- Interpret and apply the laws of motion to determine the effects of forces on the motion of objects.	What are the fundamental differences between material in the solid, liquid, gaseous and plasma states? What happens to motion of particles at extremely low temperatures? Use LeChatlier's principle to predict changes in equilibrium.	Properties of Liquids and Solids
PS1.2.5 - Explain that states of matter rely on the arrangement and motion of molecules, and differentiate between the structures of solids, liquids, and gases.	How are mixtures different from compounds or elements? Define colligative property and list 4 colligative	Solutions and their Behavior

PS1.2.6 - Use physical and chemical properties as determined through an investigation to identify a substance. PS2.2.5 - Demonstrate how transformations of energy produce some energy in the form of heat and therefore the efficiency of the system is reduced (chemical, biological, and physical systems) PS2.3.6 - Describe the relationship between heat and temperature, explaining that heat energy consists of the random motion and vibrations of atoms, molecules, and ions and that the higher the temperature, the greater the atomic or molecular motion.	properties of solutions.	
PS2.2.3 - Recognize that a large number of important reactions involve the transfer of either electrons or hydrogen ions between reacting ions, molecules, or atoms.	Why is it that many foods contain acids but relatively few contain bases?	Acids and bases
PS1.2.2 - Determine whether an atom is either electrically neutral or an ion by referring to the its number of electrons. PS1.2.3 - Explain how the chemical properties of an element are governed by the electron configuration of atoms, and describe how atoms interact with one another by transferring or sharing the outermost electrons. PS2.1.2 - Recognize that atoms interact with one another by transferring or sharing electrons that are furthest from the nucleus and explain that the outer electrons govern the chemical properties of an element. PS2.3.9 - Describe how electrons flow easily in some materials, such as metals, whereas in insulating materials, such as glass, they can hardly flow at all.	How is electricity related to chemistry? Electrochemistry.	Oxidation Reduction Reactions
Physical Science	Physics	
Standards	Essential Questions	Unit
PS3.1.8 - Given information (e.g., graphs, data, diagrams), use the relationships between or among force, mass, velocity, momentum, acceleration to predict and explain the motion of objects. PS3.2.1 - MOTION- Interpret and apply the laws of motion to determine the effects of forces on the motion of objects.	How can we describe motion? What is the ideal reference point from which to describe motion?	Motion
PS3.1.1 - FORCES- Understand the four fundamental forces found in nature: gravitation, electromagnetism, strong nuclear force, and weak nuclear force.	What causes motion? Are all forces the same and do they have the same	Forces

PS3.2.1 - MOTION- Interpret and apply the laws of motion to determine the effects of forces on the motion of objects. PS3.2.3 - Apply the concepts of inertia, motion, and momentum to predict and explain situations involving forces and motion, including stationary objects and collisions.	effect on objects.	
PS3.1.1 - FORCES- Explain that magnetic forces are related to the action of electrons and can be thought of as different aspects of a single electromagnetic force; and describe how the interplay of these forces is the basis for electric motors, generators, radio, television, and many other modern technologies. PS3.1.8 - Given information (e.g., graphs, data, diagrams), use the relationships between or among force, mass, velocity, momentum, acceleration to predict and explain the motion of objects. PS3.2.1 - MOTION- Interpret and apply the laws of motion to determine the effects of forces on the motion of objects. PS3.2.3 - Apply the concepts of inertia, motion, and momentum to predict and explain situations involving forces and motion, including stationary objects and collisions.	Do forces in one direction affect forces in other directions? How is motion affected when more than one force acts on an object?	Forces in Two Dimensions
PS3.1.1 - FORCES- Explain that magnetic forces are related to the action of electrons and can be thought of as different aspects of a single electromagnetic force; and describe how the interplay of these forces is the basis for electric motors, generators, radio, television, and many other modern technologies. PS3.1.2 - Recognize that the strength of the electric force between two charged objects is proportional to the charges and, as with gravitation, is inversely proportional to the square of the distance between them. PS3.1.4 - Compare the strength of nuclear, electromagnetic and gravitational forces; and explain that the strength of nuclear forces account for the great amounts of energy released from the nuclear reactions in atomic or hydrogen bombs, and in the Sun and other stars. PS3.2.1 - MOTION- Interpret and apply the laws of motion to determine the effects of forces on the motion of objects. PS3.2.2 - Recognize that apparent changes in wavelength can provide information about changes in motion, explain that the observed wavelength of a wave depends upon the relative motion of the source and the observer, and relates these to the differences between shorter and longer wavelengths. PS3.2.3 - Apply the concepts of inertia, motion, and momentum to predict and explain situations involving forces and motion, including stationary objects and collisions.	What factors affect field forces like gravity and magnetism?	Gravitation
PS3.1.2 - Recognize that the strength of the electric force between two charged objects is proportional to the charges and, as with gravitation, is inversely proportional to the square of the distance between them. PS3.1.3 - Recognize that the strength of the gravitational force between two masses is proportional to the masses and inversely proportional to	What keeps objects in orbit? How is projectile motion like objects in orbit? Calculate the time, maximum height and range of	Motion in Two Dimensions

the square of the distance between them. PS3.1.8 - Given information (e.g., graphs, data, diagrams), use the relationships between or among force, mass, velocity, momentum, acceleration to predict and explain the motion of objects. PS3.2.1 - MOTION- Interpret and apply the laws of motion to determine the effects of forces on the motion of objects. PS3.2.3 - Apply the concepts of inertia, motion, and momentum to predict and explain situations involving forces and motion, including stationary objects and collisions.	projectiles given their angle of launch and initial velocity.	
PS3.1.8 - Given information (e.g., graphs, data, diagrams), use the relationships between or among force, mass, velocity, momentum, acceleration to predict and explain the motion of objects. PS3.2.1 - MOTION- Interpret and apply the laws of motion to determine the effects of forces on the motion of objects. PS3.2.3 - Apply the concepts of inertia, motion, and momentum to predict and explain situations involving forces and motion, including stationary objects and collisions.	How are angular displacement, speeds and accelerations related to their linear motion counterparts?	Rotary Motion
PS3.1.8 - Given information (e.g., graphs, data, diagrams), use the relationships between or among force, mass, velocity, momentum, acceleration to predict and explain the motion of objects. PS3.2.1 - MOTION- Interpret and apply the laws of motion to determine the effects of forces on the motion of objects. PS3.2.3 - Apply the concepts of inertia, motion, and momentum to predict and explain situations involving forces and motion, including stationary objects and collisions.	What factors affect how far a baseball or golf ball can be hit? How is force related to momentum?	Momentum and It's Conservation
PS3.1.8 - Given information (e.g., graphs, data, diagrams), use the relationships between or among force, mass, velocity, momentum, acceleration to predict and explain the motion of objects. PS3.2.1 - MOTION- Interpret and apply the laws of motion to determine the effects of forces on the motion of objects. PS3.2.3 - Apply the concepts of inertia, motion, and momentum to predict and explain situations involving forces and motion, including stationary objects and collisions.	How are work and Energy related? How can we make work easier or faster?	Work, Energy and Simple Machines
PS2.2.5 - Demonstrate how transformations of energy produce some energy in the form of heat and therefore the efficiency of the system is reduced (chemical, biological, and physical systems) PS2.3.1 - ENERGY- Explain that all energy can be considered to be either kinetic energy, potential energy, or energy contained by a field. PS2.3.2 - Provide examples of how kinetic and potential energy can be transformed from one to the other. PS2.3.6 - Describe the relationship between heat and temperature, explaining that heat energy consists of the random motion and vibrations of atoms, molecules, and ions and that the higher the temperature, the	How does friction relate to the law of conservation of energy? How do engines convert heat into work?	Thermal Energy and Thermodynamics.

greater the atomic or molecular motion.		
PS1.2.5 - Explain that states of matter rely on the arrangement and motion of molecules, and differentiate between the structures of solids, liquids, and gases.	How is the physics of macromolecular objects similar to atomic and subatomic particles? How is it different?	States of Matter
PS2.2.5 - Demonstrate how transformations of energy produce some energy in the form of heat and therefore the efficiency of the system is reduced (chemical, biological, and physical systems)		
PS2.3.1 - ENERGY- Explain that all energy can be considered to be either kinetic energy, potential energy, or energy contained by a field.		
PS2.3.2 - Provide examples of how kinetic and potential energy can be transformed from one to the other.		
PS2.3.6 - Describe the relationship between heat and temperature, explaining that heat energy consists of the random motion and vibrations of atoms, molecules, and ions and that the higher the temperature, the greater the atomic or molecular motion.		
PS2.3.9 - Describe how electrons flow easily in some materials, such as metals, whereas in insulating materials, such as glass, they can hardly flow at all.		
PS2.3.7 - Explain that waves, such as light, seismic, sound waves, have energy and can transfer energy when they interact with matter.	How do we hear things?	Sound
PS3.2.4 - Explain the effects on wavelength and frequency as electromagnetic waves interact with matter (e.g., light diffraction, blue sky).		
PS4.3.A.4 - Explain the relationship between energy and power.		
PS2.3.4 - Explain the range of the electromagnetic spectrum as it relates to both wavelength and energy, and provide examples of practical applications of the different wavelengths in the spectrum.	How do waves and particles act similarly and how are they different? What is the mediums role in the propogation of waves? Does a waves medium have to consist of matter?	Waves
PS2.3.7 - Explain that waves, such as light, seismic, sound waves, have energy and can transfer energy when they interact with matter.		
PS2.1.5 - Explain relationships between and among electric charges, magnetic fields, electromagnetic forces, and atomic particles.	How do our eyes see?	Fundamentals of Light
PS2.3.4 - Explain the range of the electromagnetic spectrum as it relates to both wavelength and energy, and provide examples of practical applications of the different wavelengths in the spectrum.		
PS2.3.5 - Recognize that the human eye can only see a narrow range of wavelengths within the electromagnetic spectrum; and explain how the variations of wavelength within that range of visible light are perceived as differences in color.		
PS2.3.7 - Explain that waves, such as light, seismic, sound waves, have energy and can transfer energy when they interact with matter.		
PS3.1.5 - Recognize that electromagnetic forces exist within and between atoms.		

PS3.2.2 - Recognize that apparent changes in wavelength can provide information about changes in motion, explain that the observed wavelength of a wave depends upon the relative motion of the source and the observer, and relates these to the differences between shorter and longer wavelengths.		
PS3.2.4 - Explain the effects on wavelength and frequency as electromagnetic waves interact with matter (e.g., light diffraction, blue sky).		

Science Process Skills

	Kindergarten	
Science Process Skills		
Standards	**Essential Questions**	**Unit**
SPS.1.1.1 - MAKING OBSERVATIONS AND ASKING QUESTIONS.- Make observations and explore materials using all of their senses. (one sense at a time).	How do we know fall is here?	Autumn
SPS.1.1.2 - Record observations using language, concrete objects, and symbolic representations.		
SPS.3.2.1 - COMMON ENVIRONMENTAL ISSUES, NATURAL RESOURCES MANAGEMENT AND CONSERVATION- Use observation skills to describe the area around their homes and school.		
SPS.4.1.3 - Using age-appropriate sources such as newspapers, books and websites.		
SPS.4.2.1 - Communication Skills- Communicate ideas and observations through a variety of tools and formats (oral, journal, drawing, projects, multimedia).		
SPS.4.3.2 - Use pictures or other means to organize ideas.		
SPS.4.3.3 - Make a graph to represent data.		
	Grade 1	
Science Process Skills		
Standards	**Essential Questions**	**Unit**
PS4.2.2 - Demonstrate how to use tools, such as rulers, scales, balances, magnifiers and thermometers to measure properties of objects, such as size, weight, temperature.	Why do different social insects live in different parts of the world? What makes a social insect different from other insects? What is the importance of insects in our world? How are insects different from other animals?	Classification: Social Insects
SPS.1.1.1 - MAKING OBSERVATIONS AND ASKING QUESTIONS.- Make observations and explore materials using all of their senses. (one sense at a time).		
SPS.1.1.2 - Record observations using language, concrete objects, and symbolic representations.		

SPS.1.1.4 - As a result of working with materials and objects, ask questions that lead to exploration and investigation. SPS.1.4.1 - REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS- Represent and interpret information and observations in many ways (such as in tally, pictographs, bar graphs, tables). SPS.4.1.3 - Using age-appropriate sources such as newspapers, books and websites.	How would the world be different if we didn't have any trees? How is the life cycle of an apple tree the same or different than the life cycle of other living things?	Classification: Apple Trees
SPS.4.1.2 - Using tools. SPS.4.1.3 - Using age-appropriate sources such as newspapers, books and websites. SPS.4.2.1 - Communication Skills- Communicate ideas and observations through a variety of tools and formats (oral, journal, drawing, projects, multimedia).	What can we recycle? How does recycling make our world a better place?	Reduce, Reuse, Recycle
SPS.1.1.4 - As a result of working with materials and objects, ask questions that lead to exploration and investigation. SPS.2.4.3 - Things can change in different ways, such as in size, weight, color and movement.	What information can we gain from fossils? What are some extinct plants and animals that have evolved to today's living things? What can we learn from observing and recording patterns of change? What causes extinction?	Change: Fossils and Extinction
SPS.1.1.5 - Sort and classify object materials and events based on one or more attributes, and explain the methods used for sorting. SPS.1.3.2 - Follow a simple step-by-step procedure. SPS.2.1.2 - When a scientific investigation is done the way it was done before, we expect to get a very similar result. SPS.4.1.2 - Using tools.	How can you classify and organize rocks and minerals? How would you compare a rock to a living thing?	Rocks and Minerals
SPS.3.3.5 - Provide examples of how people throughout history have used legends and stories to explain how the world works. SPS.4.1.3 - Using age-appropriate sources such as newspapers, books and websites. SPS.4.3.2 - Use pictures or other means to organize ideas.	How is Sunapee, NH part of the bigger world? What patterns can you see in every day, night, and year? How is the sun necessary and essential to life on Earth?	Space: Earth, Moon and Stars
SPS.1.1.1 - MAKING OBSERVATIONS AND ASKING QUESTIONS.- Make observations and explore materials using all of their senses. (one sense at a time).	How do simple machines make your life easier?	Simple Machines

SPS.1.1.2 - Record observations using language, concrete objects, and symbolic representations. SPS.2.1.1 - NATURE OF SCIENCE (NOS)- People often learn things about things by just observing those things carefully, but sometimes they can learn more by doing something to the things and what happens. SPS.2.2.1 - SYSTEMS AND ENERGY (SAE)- Most things are made of parts. SPS.2.2.2 - When parts are put together, they can do things that they couldn't do by themselves.		
SPS.2.2.3 - Something may not work if some of its parts are missing. SPS.2.3.1 - MODELS AND SCALE (MAS)- A model of something is different from the real thing but can be used to learn something about the real thing. SPS.2.5.1 - FORM AND FUNCTION (FAF)- Identify shape and use of objects. SPS.2.5.2 - Draw and object and the object in use. SPS.3.1.1 - COLLABORATION IN SCIENTIFIC ENDEAVORS- Work with a partner to accomplish a specific task. SPS.3.3.1 - SCIENCE AND TECHNOLOGY; TECHNOLOGICAL DESIGN AND APPLICATION- Demonstrate that all tools have a special purpose, some are used: to measure, to help in observations, to make things or to make things better.		
SPS.3.1.2 - Take turns. SPS.3.1.3 - Ask questions of others about their work SPS.4.3.2 - Use pictures or other means to organize ideas. SPS.4.8.1 - Accountability and Adaptability- Take part in sharing information with another classroom or school as a group. SPS.4.9.1 - Social Responsibility- Collaborate, as a group, with another classroom or school.	Why do different habitats have different animals and plants? What can you do to keep the environment and oceans healthy?	Ocean Exploration
	Grade 2	
Science Process Skills		
Standards	**Essential Questions**	**Unit**
SPS.1.1.3 - Ask questions about objects, organisms and events in their immediate environment. SPS.1.2.1 - DESIGNING SCIENTIFIC INVESTIGATIONS- Select tools and procedures, in a purposeful way, to explore objects and materials. SPS.1.2.2 - Suggest a plan and describe a sequence of events for conducting an exploration. SPS.1.2.3 - Predict how changing one part of an exploration will effect the outcome. SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Follow their own plan for conducting an investigation. SPS.1.3.2 - Follow a simple step-by-step procedure.	Why are insects an important part of a habitat? What is an insect?	Insects

PS1.1.1 - COMPOSITION- Recognize that objects can be composed of different types of materials, such as wood, metal, and paper. PS1.1.2 - Recognize that objects can be made of one or more materials. PS1.2.1 - Identify the observable properties of different objects, such as color, size, shape, weight and texture. PS2.1.1 - CHANGE- Describe how the properties of certain materials can change when specific actions are applied to them, such as freezing, mixing, heating, cutting, dissolving and bending. PS2.2 - Recognize that not all materials react the same way when an action is applied to them. SPS.4.4.3 - Look for evidence to support ideas. SPS.4.6.1 - Interpersonal and Collaborative Skills- Plan and carry out simple activities with a group. SPS.4.8.1 - Accountability and Adaptability- Take part in sharing information with another classroom or school as a group. SPS.4.9.1 - Social Responsibility- Collaborate, as a group, with another classroom or school.	How can recycling help our planet? How can we reduce waste through conservation, recycling and reuse? What is a carbon footprint?	Recycling
SPS.4.2.1 - Communication Skills- Communicate ideas and observations through a variety of tools and formats (oral, journal, drawing, projects, multimedia). SPS.4.3.2 - Use pictures or other means to organize ideas. SPS.4.3.3 - Make a graph to represent data. SPS.4.4.2 - Compile observations (one to one relationship) by making or using simple pictographs, tally charts or simple graphs. SPS.4.4.3 - Look for evidence to support ideas. SPS.4.7.1 - Self Direction- Keep a visual or written journal.	How are living and non-living things affected by the weather? How does weather change throughout the year? How do weather patterns and temperature change over time? What tools do we use to measure weather changes How is energy transfer by radiation, conduction, and convection related to changes in weather?	Weather
SPS.2.1.3 - Sometimes people aren't sure what will happen because they don't know everything that might be having an effect. SPS.2.4.1 - PATTERNS OF CHANGE (POC)- Things change in some ways and stay the same in some ways. SPS.4.3.1 - Critical Thinking and Systems Thinking- Make observations and tell ideas about real-life issues.	How and why do we take care of our body? How do humans grow and develop?	About Me
SPS.2.2.1 - SYSTEMS AND ENERGY (SAE)- Most things are made of parts. SPS.3.3.2 - Provide examples that highlight the importance of the planning phase of any project. SPS.3.3.3 - Identify multiple ways to solve a design problem. SPS.3.3.4 - Describe how most things are made up of multiple parts and explain that things may not work if some parts are missing. SPS.4.1.1 - Information and Media Literacy- Experience with a variety of	What is energy? How do people use energy in their lives? What would happen if we did not have any sources of energy?	Energy

media sources.		
SPS.4.4.1 - Problem Identification, Formulation, and Solution- Ask questions and take part in investigations.		
SPS.4.5.1 - Creativity and Intellectual Curiosity- Use computer software and various technologies as appropriate to display and communicate information and ideas.		
SPS.1.1.1 - MAKING OBSERVATIONS AND ASKING QUESTIONS.- Make observations and explore materials using all of their senses. (one sense at a time).	What can you learn from these animals? How do the life cycle of people and animals differ? How are animals dependent on each other for survival? How do plants and animals interact?	NH Animals
SPS.1.1.4 - As a result of working with materials and objects, ask questions that lead to exploration and investigation.		
SPS.1.4.1 - REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS- Represent and interpret information and observations in many ways (such as in tally, pictographs, bar graphs, tables).		
SPS.2.3.2 - One way to describe something is to say how it is like something else.		
SPS.2.3.3 - Things in nature ands things people make have very different sizes, weights, ages and speeds.		
SPS.2.4.2 - People can keep track of some things, seeing where they come from and where they go.		
SPS.2.4.3 - Things can change in different ways, such as in size, weight, color and movement.		
	Grade 3	
Science Process Skills		
Standards	**Essential Questions**	**Unit**
SPS.1.4.1 - REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS- Compile and display data in a variety of formats.	How do people take responsibility for the part of the community that includes trees? How do trees' adaptations affect their ability to survive? How does a tree represent the health of the environment? How is a tree's life cycle similar or different from the life cycle of other organisms? What is a tree's role/job in its ecosystem?	Tree Life Cycle and Environment
SPS.1.4.2 - Select an appropriate format to represent data or observations.		
SPS.2.1.5 - Scientists' explanations about what happens in the world come partly from what they observe, partly from what they think.		
SPS.2.2.1 - SYSTEMS AND ENERGY (SAE)- In something that consists of many parts, the parts usually influence one another.		
SPS.2.3.3 - Almost everything has limits on how big or small it can be.		
SPS.3.2.3 - Develop questions that help them learn about the environment, design and do simple investigations.		
SPS.3.2.4 - Locate and collect information about the environment and environmental and natural resources topics.		
SPS.3.2.6 - Organize information to search for relationships and patterns concerning the environment and environmental topics.		
SPS.3.2.7 - Identify and investigate issues in their local environments and communities.		
SPS.4.7.1 - Self Direction- Keep a journal record of observations,		

recognizing patterns, summarizing findings, and reflecting on the observations.		
SPS.2.1.3 - Recognize when comparisons might not be fair because some conditions are not kept the same. SPS.2.1.4 - Scientific investigations may take many different forms, including observing what things are like or what is happening somewhere, collecting specimens for analysis, and doing experiments. Investigations can focus on physical, biological, and social question SPS.2.1.5 - Scientists' explanations about what happens in the world come partly from what they observe, partly from what they think. SPS.2.4.1 - PATTERNS OF CHANGE (POC)- Some small changes can be detected by taking measurements. SPS.2.4.2 - Some changes are so slow or so fast that they are hard to see.	What is weather and how does the environment cause certain types of weather to exist? Why is it important to track and predict weather and its patterns? How does the water cycle effect weather? How are weather conditions measured? What is the water cycle and all of its functions? How does weather change and shape our earth?	Water and Weather
SPS.1.1.5 - Classify according to several attributes and describe or show the method for classification. SPS.1.1.6 - Compare methods of classifying based on the goal. SPS.1.2.1 - DESIGNING SCIENTIFIC INVESTIGATIONS- Plan a step-by-step process to solve a practical problem or to carry out a "fair test" of a simple scientific question. SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Follow a set of procedures. SPS.1.3.2 - Plan and test ideas through guided experiments. SPS.1.3.3 - Identify and use appropriate tools. SPS.1.4.2 - Select an appropriate format to represent data or observations.	What is a simple machine? How does a simple machine make work easier? Where can simple machines be found? How does force work to help or hinder simple machines?	Simple Machines Force, Motion and Simple Machines
	Grade 4	
Science Process Skills		
Standards	**Essential Questions**	**Unit**
SPS.1.1.1 - MAKING OBSERVATIONS AND ASKING QUESTIONS.- Extend the senses using simple tools. SPS.1.1.4 - Record observations using standard units of measurement. SPS.1.1.8 - Pose questions to investigate and practical problems to solve. SPS.1.2.2 - Select an activity and justify it as an effective means of collecting appropriate data. SPS.2.2.1 - SYSTEMS AND ENERGY (SAE)- In something that consists of many parts, the parts usually influence one another. SPS.2.5.1 - FORM AND FUNCTION (FAF)- Discover the relationship between shape and use. SPS.3.1.1 - COLLABORATION IN SCIENTIFIC ENDEAVORS- Given a specific role in a group, is able to complete the assigned task.	How and why do we take care of our body? How does the human body work? What are the systems and structure of the human body? What would happen if we do not give our body proper nutrition and / or exercise?	Human Health/Body

SPS.3.1.2 - Communicates ideas to others. SPS.3.1.3 - Gives specific feedback about work of others. SPS.4.3.3 - Organize observations and data into tables, charts and graphs.		
SPS.3.2.1 - COMMON ENVIRONMENTAL ISSUES, NATURAL RESOURCES MANAGEMENT AND CONSERVATION- Demonstrate a basic conservation action such as recycling or a schoolyard habitat project. SPS.3.2.2 - Develop questions based upon their observations about the natural world and design a simple investigation. SPS.3.2.3 - Develop questions that help them learn about the environment, design and do simple investigations. SPS.3.2.4 - Locate and collect information about the environment and environmental and natural resources topics. SPS.3.2.6 - Organize information to search for relationships and patterns concerning the environment and environmental topics. SPS.3.2.7 - Identify and investigate issues in their local environments and communities. SPS.4.3.1 - Critical Thinking and Systems Thinking- Apply a variety of age-appropriate strategies to address real-life issues (e.g. identify factors that affect plants in a particular habitat). SPS.4.4.2 - Compile data gathered through observations to record and present results using tally charts, tables and graphs. SPS.4.5.1 - Creativity and Intellectual Curiosity- Use a variety of equipment and software packages to enter, process, display, and/or communicate information in different forms using text, tables, pictures, and sound. (i.e. brainstorming software, collaboration soft SPS.4.7.1 - Self Direction- Keep a journal record of observations, recognizing patterns, summarizing findings, and reflecting on the observations.	How does diversity impact a community? What is an ecosystem? How do living and non-living things interact in a natural community? What characteristics make something living? What is the difference between non-living and dead? How does the climate affect the habitat/plants/animals? What adaptations allow a plant to survive in a particular environment? How do animal adaptations help animals survive? What are behavioral adaptations animals have to meet their needs?	Living and Nonliving in an Ecosystem
SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Follow a set of procedures. SPS.1.3.2 - Plan and test ideas through guided experiments. SPS.2.2.2 - Something may not work well (or at all) if a part of it is missing, broken, worn out, mismatched, or misconnected. SPS.2.3.1 - MODELS AND SCALE (MAS)- Seeing how a model works after changes are made to it may suggest how the real thing would work if the same changes were done to it. SPS.3.1.1 - COLLABORATION IN SCIENTIFIC ENDEAVORS- Given a specific role in a group, is able to complete the assigned task. SPS.3.1.2 - Communicates ideas to others. SPS.3.1.3 - Gives specific feedback about work of others. SPS.3.2.5 - Use reliable information to answer questions. SPS.4.2.1 - Communication Skills- Use a variety of tools and formats (oral presentations, journals, and multimedia presentations) to summarize and communicate the results of observations.	How can electricity in circuits produce light, sound, heat, and magnetic effects? What is the relationship between electricity and magnets? What are the properties of insulators and conductors? How do electrical circuits work? What parts are used to create an electrical circuit? Where does energy come from? How is energy transferred?	Energy Through Magnetism and Electricity

SPS.4.4.2 - Compile data gathered through observations to record and present results using tally charts, tables and graphs. SPS.4.4.3 - Use evidence to construct explanations. SPS.4.6.1 - Interpersonal and Collaborative Skills- Plan and conduct a scientific investigation in group settings.		
SPS.4.6.2 - Engage in group decision making activities.		
SPS.1.1.5 - Classify according to several attributes and describe or show the method for classification. SPS.1.1.6 - Compare methods of classifying based on the goal. SPS.1.1.7 - Ask questions about objects, organisms and events in their local environment. SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Follow a set of procedures. SPS.1.3.3 - Identify and use appropriate tools. SPS.1.4.1 - REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS- Compile and display data in a variety of formats. SPS.2.3.3 - Almost everything has limits on how big or small it can be. SPS.2.4.1 - PATTERNS OF CHANGE (POC)- Some small changes can be detected by taking measurements. SPS.2.4.2 - Some changes are so slow or so fast that they are hard to see.	How is each type of rock formed? What causes rocks to break down? What can the formation of rocks and minerals tell us about how the Earth has changed? How do we use rocks, minerals and earth materials in our everyday lives? What is the difference between rocks and minerals? What is the rock cycle? How do earth's materials effect the rock cycle and how does the rock cycle affect the earth's materials?	Rocks, Minerals and Earth Materials
SPS.2.3.1 - MODELS AND SCALE (MAS)- Seeing how a model works after changes are made to it may suggest how the real thing would work if the same changes were done to it. SPS.3.3.3 - Provide examples illustrating that throughout history, people of all ages and from all walks of life, have made significant contributions to the fields of science and technology. SPS.4.1.1 - Information and Media Literacy- Access information from a variety of media sources (i.e. Internet, CD-ROM programs, print resources). SPS.4.1.3 - Analyze and compare data from a variety of age-appropriate sources such as newspapers and websites. SPS.4.3.2 - Build a Concept Map (or other graphic organizer) to understand a complex problem. SPS.4.5.1 - Creativity and Intellectual Curiosity- Use a variety of equipment and software packages to enter, process, display, and/or communicate information in different forms using text, tables, pictures, and sound. (i.e. brainstorming software, collaboration soft SPS.4.7.1 - Self Direction- Keep a journal record of observations, recognizing patterns, summarizing findings, and reflecting on the observations.	What are the distinct parts of the solar system? What is the earth's interrelationship to the distinct parts of the solar system? How does the earth's interrelationships affect our daily lives? How does technology help us to understand properties of stars and galaxies?	Astronomy

	Grade 5	
Science Process Skills		
Standards	**Essential Questions**	**Unit**
SPS.1.1.1 - MAKING OBESERVATIONS AND ASKING QUESTIONS.- Make observations and record measurements using a variety of tools and instruments. SPS.1.1.2 - Plan observations based on a given purpose. SPS.1.1.3 - Identify and investigate similarities and differences among observations and sets of observations. SPS.1.1.4 - Use appropriate units and precision of metric measurement when recording data. SPS.1.1.6 - Construct a simple classification key. SPS.1.1.7 - Compare methods of classification for a specific purpose. SPS.2.5.3 - Investigate the relationship between various landforms and wind currents.	What makes weather wet and wild? How does the Earth's position in its orbit affect our weather? How is our climate changing and what does that change mean for us? How do Meteorologists determine the weather? How is the water cycle directly related to the weather?	Climate and Weather
SPS.1.1.8 - Ask questions about relationships between and among observations. SPS.1.1.10 - Distinguish between those questions that can be answered by science and those that cannot. SPS.1.4.3 - Compare and display data in a variety of student or computer generated formats (such as diagrams, flow charts, tables, bar graphs, line graphs, scatter plots, and histograms).	How do plate tectonics play a role in our Earth's system? What are earthquakes? How do earthquakes affect our Earth? What are volcanoes? How do volcanoes affect the Earth's landscape?	The Restless Earth - Earth's Moving Crust
SPS.2.2.3 - Estimate or predict the effect of making a change in one part of the system will have on other parts and on the system as a whole. SPS.3.1.1 - COLLABORATION IN SCIENTIFIC ENDEAVORS- Work effectively within a cooperative group setting, accepting and executing assigned roles and responsibilities. SPS.3.1.2 - Work collectively within a group toward a common goal. SPS.3.1.3 - Demonstrate respect of one another's abilities and contributions to the group. SPS.3.2.1 - COMMON ENVIRONMENTAL ISSUES, NATURAL RESOURCES MANAGEMENT AND CONSERVATION- Develop, focus and explain questions about the environment and do environmental investigations. SPS.3.2.2 - Design environmental investigations to answer particular questions. SPS.3.2.3 - Explore evidence that human-caused changes have consequences for the immediate environment as well as for other places and future times. SPS.3.2.4 - Explore how humans shape and control the environment while creating knowledge and developing new technologies. SPS.3.2.5 - Investigate environmental and resource management issues at scales that range from local to national to global.	What ways does nature recycle or reuse materials? In what ways can humans leave less of an environmental impact? In what ways have humans changed the environment and structure of the earth? Have humans interfered with or improved the way the earth functions? What are the ways humans use the earth to ensure our species' survival? What are some of the ways that people of New Hampshire use our natural resources to ensure our survival in this region?	Environmental Issues

SPS.2.2.1 - SYSTEMS AND ENERGY (SAE)- Thinking about things as systems means looking for how every part relates to others. SPS.2.2.2 - Collections of pieces (powders, marbles, sugar cubes or wooden blocks) may have properties that the individual pieces do not.	How are our lives influenced by the different states of matter? What is the Periodic Table of elements and how is the Periodic Table like a deck of cards? What would science be like without the Periodic Table?	Organizing the Periodic Table/Atoms and Bonding
SPS.2.4.1 - PATTERNS OF CHANGE (POC)- Things change in steady, repetitive, or irregular ways—or sometimes in more than one way at the same time. Often the best way to tell which kinds of change are happening is to make a table or graph of measurements. SPS.2.5.2 - Diagram and label the structure of the primary components of representative organs in plants and animals.	How are plants different from other living organisms in the way they get their energy? What do plants need from their environment for survival? What do plants give back to the environment that is considered either helpful or harmful?	Photosynthesis and the transfer of energy
SPS.1.2.1 - DESIGNING SCIENTIFIC INVESTIGATIONS- Design and record a simple step-by-step procedure to follow in order to carry out a fair test of a scientific question. SPS.1.2.2 - Identify and utilize appropriate tools/technology for collecting data in designing investigations. SPS.1.2.3 - Incorporate components of good experimental design, such as controls and multiple trials into investigations. SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Carry out simple student or teacher SPS.1.3.2 - Use appropriate tools to collect and record data. SPS.1.3.3 - Follow the teacher's instructions in performing experiments, following all appropriate safety rules and procedures. SPS.1.4.1 - REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS- Use appropriate tools to organize, represent, analyze and explain data. SPS.2.2.3 - Estimate or predict the effect of making a change in one part of the system will have on other parts and on the system as a whole. SPS.2.2.4 - Energy exists in a variety of forms, including heat, light, sound, mechanical, electrical, and chemical energy. SPS.2.2.5 - Energy can be transformed from one form to another, for example, from electrical energy to heat, light or mechanical energy.	How is energy transferred? What tools are used to study sound and light? What is the relationship between all forms of radiant energy? How are sound and light energy the same/different?	Light and Sound
	Grade 6	
Science Process Skills		
Standards	**Essential Questions**	**Unit**
SPS.1.1.1 - MAKING OBESERVATIONS AND ASKING QUESTIONS.- Ask questions about relationships among variables that can be observed directly as well as those that cannot.	How are forces exerted on moving objects?	Forces

SPS.1.1.1 - MAKING OBESERVATIONS AND ASKING QUESTIONS.- Use appropriate tools to accurately collect and record both qualitative and quantitative data gathered through observations. (i.e. temperature probes, electronic balances, spring scales, microscopes, stop watches	How can you determine and object's position by tracking motion over time? How can the motion of an object be described and measured?	Motion
SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Select and use apparatus and material safely. SPS.1.3.2 - Use instruments effectively and accurately for collecting data.	In what ways have the Earth and its materials changed over long periods of time?	Change on the Earth's Surface
SPS.2.1.7 - In science, the testing, revising, and occasional discarding of theories, new and old, never ends. This ongoing process leads to an increasingly better understanding of how things work in the world but not to absolute truth. SPS.2.1.4 - Hypotheses are widely used in science for choosing what data to pay attention to and what additional data to seek, and for guiding the interpretation of the data (both new and previously available).	How can fossils provide evidence of the Earth's geological events?	Fossils
SPS.1.4.1 - REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS- Compile and display data, evidence and information by hand and computer, in a variety of formats, including diagrams, flow charts, tables, graphs and scatter plots.	What are the identifiable characteristics that allow for survival in all living organisms?	Living Organisms
	Grade 7	
Science Process Skills		
Standards	**Essential Questions**	**Unit**
SPS.1.1.1 - MAKING OBESERVATIONS AND ASKING QUESTIONS.- Use appropriate tools to accurately collect and record both qualitative and quantitative data gathered through observations. (i.e. temperature probes, electronic balances, spring scales, microscopes, stop watches	How can we learn about the world around us? How can we find reasonable answers to our questions about the world around us?	Scientific Method
SPS.1.1.1 - MAKING OBESERVATIONS AND ASKING QUESTIONS.- Use appropriate tools to accurately collect and record both qualitative and quantitative data gathered through observations. (i.e. temperature probes, electronic balances, spring scales, microscopes, stop watches	How can we learn about the world around us? How can we find reasonable answers to our questions about the world around us?	Metric System
	Grade 8	
Science Process Skills		
Standards	**Essential Questions**	**Unit**
SPS.1.1.1 - MAKING OBESERVATIONS AND ASKING QUESTIONS.-	How can we learn about the world around us?	Scientific Method

Use appropriate tools to accurately collect and record both qualitative and quantitative data gathered through observations. (i.e. temperature probes, electronic balances, spring scales, microscopes, stop watches	How can we find reasonable answers to our questions about the world around us?	
SPS.1.1.1 - MAKING OBESERVATIONS AND ASKING QUESTIONS.- Use appropriate tools to accurately collect and record both qualitative and quantitative data gathered through observations. (i.e. temperature probes, electronic balances, spring scales, microscopes, stop watches	How can we learn about the world around us? How can we find reasonable answers to our questions about the world around us?	Metric System
SPS.1.1.1 - MAKING OBESERVATIONS AND ASKING QUESTIONS.- Use appropriate tools to accurately collect and record both qualitative and quantitative data gathered through observations. (i.e. temperature probes, electronic balances, spring scales, microscopes, stop watches	How can we learn about the world around us? How can we find reasonable answers to our questions about the world around us?	Study of Spiders
Science Process Skills	**Astronomy**	
Standards	**Essential Questions**	**Unit**
SPS.2.1.5 - In the long run, theories are judged by how they fit with other theories, the range of observations they explain, how well they explain observations, and how effective they are in predicting new findings.	How is astronomy studied?	History of Astronomy
SPS.2.4.3 - A system in equilibrium may return to the same state of equilibrium if the disturbances it experiences are small. But large disturbances may cause it to escape that equilibrium and eventually settle into some other state of equilibrium.	How can we use the Earth as a model for studying other planets?	The Earth
Science Process Skills	**Physical Science**	
Standards	**Essential Questions**	**Unit**
SPS.1.1.1 - MAKING OBESERVATIONS AND ASKING QUESTIONS.- Ask questions about relationships among variables that can be observed directly as well as those that cannot.	Why do we invent standards of measurement?	Measurement
SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Select and use apparatus and material safely.		
SPS.1.3.2 - Use instruments effectively and accurately for collecting data.		
SPS.1.3.3 - Compile and organize data, using appropriate.		
SPS.1.4.1 - REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS- Compile and display data, evidence and information by hand and computer, in a variety of formats, including diagrams, flow charts, tables, graphs and scatter plots.		
SPS.1.5.1 - EVALUATING SCIENTIFIC EXPLANATIONS- Explain how data support or refute the hypothesis or prediction.		
SPS.2.1.1 - NATURE OF SCIENCE (NOS)- Explore new phenomena through investigations conducted for different reasons, or to check on previous results.		

SPS.2.1.7 - In science, the testing, revising, and occasional discarding of theories, new and old, never ends. This ongoing process leads to an increasingly better understanding of how things work in the world but not to absolute truth. SPS.2.3.1 - MODELS AND SCALE (MAS)- The basic idea of mathematical modeling is to find a mathematical relationship that behaves in the same way as the objects or processes under investigation. A mathematical model may give insight about how something really works.		
SPS.1.2.2 - State a hypothesis and prediction based on available evidence and background information. SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Select and use apparatus and material safely. SPS.1.3.2 - Use instruments effectively and accurately for collecting data. SPS.1.3.3 - Compile and organize data, using appropriate. SPS.2.1.4 - Hypotheses are widely used in science for choosing what data to pay attention to and what additional data to seek, and for guiding the interpretation of the data (both new and previously available). SPS.2.3.1 - MODELS AND SCALE (MAS)- The basic idea of mathematical modeling is to find a mathematical relationship that behaves in the same way as the objects or processes under investigation. A mathematical model may give insight about how something really works. SPS.2.4.2 - Graphs and equations are useful (and often equivalent) ways for depicting and analyzing patterns of change. SPS.3.2.2 - Design investigations to answer particular questions about the environment. SPS.3.2.6 - Create, use and evaluate models to understand environmental phenomena. SPS.3.2.7 - Use to evidence and logic in developing proposed explanations that address their initial questions and hypotheses.	How is science different from other fields of study? How do scientists test their ideas?	Science Inquiry
SPS.2.4.2 - Graphs and equations are useful (and often equivalent) ways for depicting and analyzing patterns of change. SPS.3.2.4 - Apply basic logic and reasoning skills to evaluate completeness and reliability in a variety of information sources.	How do we recognize motion? How do we describe and measure motion? What causes motion?	Physics of Motion and Forces
Science Process Skills	**Chemistry**	
Standards	**Essential Questions**	**Unit**
SPS.1.2.1 - DESIGNING SCIENTIFIC INVESTIGATIONS- Apply scientific theories and laws to new situations to generate hypotheses. SPS.1.2.2 - State a hypothesis and prediction based on available evidence and background information. SPS.1.3.3 - Compile and organize data, using appropriate.	Why is it important to have standards for measurements? Why is it important to use significant figures in	Measurements and Calculations in Chemistry

SPS.1.4.1 - REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS- Compile and display data, evidence and information by hand and computer, in a variety of formats, including diagrams, flow charts, tables, graphs and scatter plots.	scientific measurement and calculations?	
SPS.1.5.1 - EVALUATING SCIENTIFIC EXPLANATIONS- Explain how data support or refute the hypothesis or prediction.		
SPS.2.1.3 - Sometimes scientists can control conditions in order to focus on the effect of a single variable. When that is not possible for practical or ethical reasons, they try to observe as wide a range of natural occurrences as possible to be able to discern patterns.		
SPS.2.1.4 - Hypotheses are widely used in science for choosing what data to pay attention to and what additional data to seek, and for guiding the interpretation of the data (both new and previously available).		
SPS.2.1.5 - In the long run, theories are judged by how they fit with other theories, the range of observations they explain, how well they explain observations, and how effective they are in predicting new findings.		
SPS.2.1.7 - In science, the testing, revising, and occasional discarding of theories, new and old, never ends. This ongoing process leads to an increasingly better understanding of how things work in the world but not to absolute truth.		
SPS.3.2.6 - Create, use and evaluate models to understand environmental phenomena.		
SPS.3.2.7 - Use to evidence and logic in developing proposed explanations that address their initial questions and hypotheses.		
SPS.1.2.3 - Develop appropriate sampling procedures for a given investigation.	Why is it that many foods contain acids but relatively few contain bases?	Acids and Bases
SPS.1.3.2 - Use instruments effectively and accurately for collecting data.		
SPS.1.4.2 - Compare theoretical and empirical values and account for discrepancies.		
SPS.1.4.3 - Evaluate the relevance, reliability and adequacy of data and data collection methods.		
SPS.4.4.2 - Plan and conduct practical tests to solve problems or answer a question, collect and analyze data using appropriate instruments and techniques safely and accurately.		
Science Process Skills	Physics	
Standards	**Essential Questions**	**Unit**
SPS.1.1.1 - MAKING OBESERVATIONS AND ASKING QUESTIONS.- Ask questions about relationships among variables that can be observed directly as well as those that cannot.	Do all objects fall at the same rate?	Physics as a Science
SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Select and use apparatus and material safely.		
SPS.1.3.2 - Use instruments effectively and accurately for collecting data.		
SPS.1.3.3 - Compile and organize data, using appropriate.		

SPS.2.4.2 - Graphs and equations are useful (and often equivalent) ways for depicting and analyzing patterns of change. SPS.4.3.3 - Apply scientific knowledge and skills to make reasoned decisions about the use of science and scientific innovations. SPS.4.4.1 - PROBLEM IDENTIFICATION, FORMULATION, AND SOLUTION- Formulate scientific questions about an issue and define experimental procedures for finding answers. SPS.4.4.2 - Plan and conduct practical tests to solve problems or answer a question, collect and analyze data using appropriate instruments and techniques safely and accurately.		
SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Select and use apparatus and material safely. SPS.1.3.2 - Use instruments effectively and accurately for collecting data. SPS.1.3.3 - Compile and organize data, using appropriate.	How can we describe motion? What is the ideal reference point from which to describe motion?	Motion
SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Select and use apparatus and material safely. SPS.1.3.2 - Use instruments effectively and accurately for collecting data. SPS.1.3.3 - Compile and organize data, using appropriate. SPS.1.3.3 - Identify and explain sources of error and uncertainty in measurement and express results in a form that acknowledges the degree of uncertainty. SPS.1.4.2 - Compare theoretical and empirical values and account for discrepancies. SPS.3.2.4 - Apply basic logic and reasoning skills to evaluate completeness and reliability in a variety of information sources.	What causes motion? Are all forces the same and do they have the same effect on objects.	Forces
SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Select and use apparatus and material safely. SPS.1.3.2 - Use instruments effectively and accurately for collecting data. SPS.1.3.3 - Compile and organize data, using appropriate. SPS.1.4.1 - REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS- Compile and display data, evidence and information by hand and computer, in a variety of formats, including diagrams, flow charts, tables, graphs and scatter plots.	Do forces in one direction affect forces in other directions? How is motion affected when more than one force acts on an object?	Forces in two dimensions
SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Select and use apparatus and material safely. SPS.1.3.2 - Use instruments effectively and accurately for collecting data. SPS.1.3.3 - Compile and organize data, using appropriate.	What keeps objects in orbit? How is projectile motion like objects in orbit? Calculate the time, maximum height and range of projectiles given their angle of launch and initial velocity.	Motion in two dimensions

SPS.1.1.1 - MAKING OBESERVATIONS AND ASKING QUESTIONS.- Ask questions about relationships among variables that can be observed directly as well as those that cannot.	What factors affect field forces like gravity and magnetism?	Gravitation
SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Select and use apparatus and material safely.		
SPS.1.3.2 - Use instruments effectively and accurately for collecting data.		
SPS.1.3.3 - Compile and organize data, using appropriate.		
SPS.2.4.2 - Graphs and equations are useful (and often equivalent) ways for depicting and analyzing patterns of change.		
SPS.2.4.2 - Graphs and equations are useful (and often equivalent) ways for depicting and analyzing patterns of change.	How are work and Energy related? How can we make work easier or faster?	Work, Energy and Simple Machines
SPS.3.2.4 - Apply basic logic and reasoning skills to evaluate completeness and reliability in a variety of information sources.		
SPS.1.3.1 - CONDUCTING SCIENTIFIC INVESTIGATIONS- Select and use apparatus and material safely.	How does friction relate to the law of conservation of energy? How do engines convert heat into work?	Thermal Energy and Thermodynamics
SPS.1.3.2 - Use instruments effectively and accurately for collecting data.		
SPS.1.3.3 - Compile and organize data, using appropriate.		