

INTRODUCTION

The Hinsdale School District PreK-12 science curriculum is a coordinated program built around science education and the expectations of the New Hampshire Curriculum Frameworks. It proceeds sequentially; introducing, expanding, and further exploring content at appropriate grade levels with increasing degrees of depth and complexity. The Common Core State Standards for English Language Arts include standards pertaining to all content areas.

Teachers are responsible for incorporating the Common Core State Standards into their science instruction.

IMPORTANT NOTE TO ALL TEACHERS

It is important for teachers to follow the curriculum for each grade level or class as described in this guide; the integrity of the PreK-12 sequence has been carefully considered in its creation. Grade levels and individual classes have some degree of flexibility in designing the sequence of topics through the year, but *addressing the provided scope is required*. At the elementary level, the topics for each grade level have been carefully planned so as to address necessary content without redundancy or omission to meet the expectations of the NH frameworks and high stakes testing. At the middle school and high school levels the curricula are also constructed to fully meet the expectations of the NH frameworks and high stakes testing. The guiding questions in each section make clear the topics of inquiry (scope) for each grade. These topics change and build on each other through the grades (sequence), making it imperative that each teacher use the guiding questions to plan instruction.

SCIENCE INQUIRY

Science Inquiry!

Actual doing!

Capture student interest and motivate continued learning!

Inquiry involves QUESTIONING. Inquiry requires being able to identify assumptions, to use critical and logical thinking, and the ability to consider alternative explanations. Inquiry might be highly structured where known outcomes are clear, or students may be free to explore with unanticipated results!

Students engaged in Inquiry:

- make observations
- pose questions
- propose answers
- examine what they may already know
- review already researched information
- explain / communicate results
- use tools to
 - gather
 - analyze
 - interpret data

Students use journals to record observations, thoughts, ideas, and models, create diagrams, and represent data and observations with plots and tables. Students present their work to others with models, graphs, reports, posters, etc.

Asking students questions to guide continued exploration provides opportunities for discussion, further reflection, and student decision-making.

Appropriate activities are safe, developmentally appropriate, and directly related to the curriculum. Sufficient tools and materials must be available and science inquiry vocabulary (provided in guide) used.

Essential Understandings

The Science Curriculum for Hinsdale Elementary, Middle and High School is built around the standards listed in the New Hampshire Curriculum Framework. Science is divided into three content domains (Earth Space Science, Life Science, and Physical Science) and one Science Process Skills domain. The three content domains should encompass the Scientific Process Skills of Inquiry and Critical Thinking Skills. The following list of Essential Understandings or Enduring Knowledge Statements are used across all grade levels.

**Essential Understandings
Earth Space Science**

Strand (Enduring Knowledge Statements)	Stem (rows) in GSEs
ESS1– The Earth and Earth materials, as we know them today, have developed over long periods of time, through constant change processes.	1. Atmosphere, Climate, and Weather
	2. Composition and Features
	3. Fossils
	4. Observation Of The Earth From Space
	5. Processes and Rates Of Change
	6. Rock Cycle
	7. Water
ESS2– The Earth is part of a solar system, made up of distinct parts, which have temporal and spatial interrelationships.	1. Earth, Sun And Moon
	2. Energy
	3. Solar System
	4. View From Earth
ESS3– The origin and evolution of galaxies and the universe demonstrate fundamental principles of physical science across vast distances and time.	1. Size And Scale
	2. Stars And Galaxies
	3. Universe
ESS4– The growth of scientific knowledge in Earth Space Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.	1. Design Technology
	2. Tools
	3. Local And Global Environmental Issues
	4. Career and Technical Education

Essential Understandings Life Science

Strand (Enduring Knowledge Statements)	Stem (rows) in GSEs
LS1– All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, and species).	1. Classification
	2. Living Things And Organization
	3. Reproduction
LS2– Energy flows and matter recycles through an ecosystem.	1. Environment
	2. Flow Of Energy
	3. Recycling Of Materials
LS3– Groups of organisms show evidence of change over time (e.g. evolution, natural selection, structures, behaviors, and biochemistry).	1. Change
	2. Evolution
	3. Natural Selection
LS4– Humans are similar to other species in many ways, and yet are unique among Earth’s life forms.	1. Behavior
	2. Disease
	3. Human Identity
LS5– The growth of scientific knowledge in Life Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.	1. Design Technology
	2. Tools
	3. Social Issues (Local And Global) Medical Technology and Biotechnology
	4. Career Technical Education Connections

(NH Department of Education- NH Curriculum Framework 2006)

**Essential Understandings
Physical Science**

Strand (Enduring Knowledge Statements)	Stem (rows) in GSEs
PS1– All living and nonliving things are composed of matter having characteristic properties that distinguish one substance from another (independent of size/amount of substance).	1. Composition
	2. Properties
PS2– Energy is necessary for change to occur in matter. Energy can be stored, transferred and transformed, but cannot be destroyed.	1. Change
	2. Conservation
	3. Energy
PS3– The motion of an object is affected by force.	1. Forces
	2. Motion
PS4– The growth of scientific knowledge in Physical Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.	1. Design Technology
	2. Tools
	3. Social Issues (Local and Global) Energy, Power, and Transportation Manufacturing
	4. Career Technical Education Connections

(NH Department of Education- NH Curriculum Framework 2006)

Essential Understandings Science Process Skills

Strand (Enduring Knowledge Statements)	Stem (rows) in GSEs
SPS1– Scientific Inquiry and Critical Thinking Skills	1. Making observations and asking questions
	2. Designing scientific investigations
	3. Conducting scientific investigations
	4. Representing and Understanding results of Investigations
	5. Evaluating Scientific Investigations
	NECAP Science Assessment Targets for Inquiry (INQ) <i>May subject of performance component</i>
SPS2– Unifying Concepts of Science (including NECAP Science Assessment Targets by Big Idea)	1. Nature of Science (NOS)
	2. Systems and Energy (SAE)
	3. Models and Scale (MAS)
	4. Patterns of Change (POC)
	5. Form and Function (FAF)
SPS3– Personal, Social, and Technological Perspectives	1. Collaboration in Scientific Endeavors
	2. Environment, Natural Resources, and Conservation
	3. Science, Technology, and Design
SPS4– Science Skills for Information, Communication and Media Literacy	1. Information and Media Literacy
	2. Communication Skills
	3. Critical Thinking and Systems Thinking
	4. Problem Identification, Formulation, and Solution
	5. Creativity and Intellectual Curiosity
	6. Interpersonal and Collaborative Skills
	7. Self Direction
	8. Accountability and Adaptability
	9. Social Responsibility

(NH Department of Education- NH Curriculum Framework 2006)

Earth Science

	Standards	Guiding Questions
ES1	<p>S:ESS1:4:1.1 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.</p> <p>S:ESS1:4:1.2 Explain that air surrounds the Earth, it takes up space, and it moves around as wind.</p> <p>S:ESS1:4:1.4 Explain how the use of scientific tools helps to extend senses and gather data about weather (i.e., weather/wind vane– direction; wind sock– wind intensity; anemometer– speed; thermometer– temperature; meter sticks/rulers– snow depth; rain gauges– rain amount in inches).</p> <p>S:ESS1:4:2.2 Describe rock as being composed of different combinations of minerals.</p> <p>S:ESS1:4:3.1 Recognize and explain that fossils offer evidence of plants, animals and the nature of environments that existed long ago.</p> <p>S:ESS1:4:5.1 Identify and describe processes that affect the features of the Earth’s surface, including weathering, erosion, deposition of sediment.</p> <p>S:ESS1:4:5.2 Explain how wind, water, or ice shape and reshape the Earth’s surface.</p>	<p>What is water?</p> <p>How does water change?</p> <p>How do these changes in water effect our lives?</p> <p>What are the similarities and differences between climate and weather?</p> <p>What is the climate that we live in?</p> <p>Why is our climate the way that it is?</p> <p>Is our climate changing?</p> <p>What tools could be used to measure weather/climate?</p> <p>What are Earth’s characteristics?</p> <p>How can Earth’s materials teach us? What can we learn from rocks?</p>

Earth Science

	<p>S:ESS1:4:6.1 Explain that smaller rocks come from the breaking and weathering of larger rocks and bedrock.</p> <p>S:ESS1:4:6.2 Distinguish between the three categories of rocks (metamorphic, igneous and sedimentary) and describe the processes that create them.</p> <p>S:ESS1:4:6.4 Use results from an experiment to draw conclusions about how water interacts with earth materials (e.g., percolation, erosion, frost heaves).</p> <p>S:ESS1:4:7.1 Recognize and describe the Earth’s surface as mostly covered by water.</p> <p>S:ESS1:4:7.2 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.</p>	<p>What evidence do we have to demonstrate how water interacts with earth?</p> <p>How did Earth get it’s shape?</p> <p>What good are minerals?</p> <p>What are the similarities and differences of fresh water and salt water?</p>
<p>ES2</p>	<p>S:ESS2:4:1.1 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.</p> <p>S:ESS2:4:1.2 Describe the Sun as a star.</p> <p>S:ESS2:4:2.1 Recognize that the Sun provides the light and heat necessary to maintain the temperature of the Earth.</p>	<p>What causes night and day?</p> <p>What is the Sun made of?</p> <p>How and in which direction does the Earth move?...the moon?</p> <p>Do stars move?</p> <p>Who discovered the answer to the question: do stars move?</p>

Earth Science

	<p>S:ESS2:4:4.1 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.</p> <p>S:ESS2:4:4.2 Explain why the planets look like stars, and why, over a period of time, they appear to wander among the constellations.</p>	<p>What is energy?</p> <p>What are fossil fuels?</p>
ES3	<p>S:ESS3:4:1.1 Recognize that astronomical objects in space are massive in size and are separated from one another by vast distances.</p> <p>S:ESS3:4:1.2 Explain that telescopes magnify the size of distant objects and significantly increase the number of these objects that can be viewed from Earth.</p>	<p>What is the universe, a galaxy, the solar system?</p> <p>How do we know the scope/size of stars?</p> <p>What tools are available to study the stars, the planets, and beyond?</p>
ES4	<p>S:ESS4:4:1.1 Recognize that man uses various mechanical devices to record changes in the weather and the Earth.</p> <p>S:ESS4:4:2.1 Demonstrate the use of simple instruments to collect weather data, including thermometers, windsocks, meter sticks, and rain gauges.</p> <p>S:ESS4:4:3.1 Distinguish between and provide examples of materials that can be recycled/reused and those that cannot.</p>	<p>What tools are available to study the stars, the planets, and beyond?</p> <p>What are the environmental issues in the area that you live?</p> <p>How can we dispose of waste without harming the environment?</p>

Earth Science

	<p>S:ESS4:4:3.2 Provide examples of technology that have changed the environment and explain whether the effect had a positive or negative impact.</p> <p>S:ESS4:4:3.3 Explain how to dispose of waste so that it does not harm the environment.</p> <p>S:ESS4:4:3.4 Recognize there are pros and cons to using different types of energy, such as solar energy and fossil fuels, and compare the differences.</p> <p>S:ESS4:4:4.1 Identify some jobs/careers that require knowledge and use of Earth science content and/or skills.</p>	
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Earth Science

Essential Vocabulary		
<u>CONTENT</u>		<u>INQUIRY</u>
weather change pattern season local atmosphere freezing condensation precipitation evaporation air surrounds space wind vane daily direction wind sock intensity anemometer speed thermometer temperature meter stick depth gauge rocks soil liquid solid texture nature	environment exist transmitted viewed satellites spacecraft surface metamorphic igneous sedimentary interacts percolation erosion frost heaves ocean fresh water underground sources glaciers appearance shape orbit constellation massive separated vast recycle reuse solar energy kinetic energy fossil fuels waste	describe compare observe measure data collect composed physical properties sort classify recognize explain evidence categorize identify draw conclusions magnify differentiate

Earth Science

Suggested Resources/ Activities

Web Sites:

<http://learningcenter.nsta.org>

www.ncsu.edu/imse/4/elementaryEd.htm

Khan Academy

Science for Nerds

Harcourt Science Series

<http://www.education.nh.gov/instruction/curriculum/science/index.htm>

(Science Curriculum Website)

<http://www.education.nh.gov/instruction/assessment/necap/released/index.htm>

(Science NECAP- Released items)

Suggested Activities:

Playing with, exploring, collecting, handling, sorting, and classifying objects.

Using graphic organizers and other strategies to motivate, organize, and identify the questions children ask about the world.

Using tools (non-standard measures, rulers, magnifiers, etc.) to enhance observations, collect, represent and interpret data.

Organizing and manipulating data in multiple ways, which may include tools of technology, e.g., calculators, and computers.

Life Science

	Standards	Guiding Questions
LS1	<p>S:LS1:4:1.2 Sort/classify different living things using similar and different characteristics; and describe why organisms belong to each group or cite evidence about how they are alike or not alike.</p> <p>S:LS1:4:2.1 Recognize that living organisms have certain structures and systems that perform specific functions, facilitating survival, growth and reproduction.</p> <p>S:LS1:4:2.3 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(K-4)FAF-4]</p> <p>S:LS1:4:2.4 Identify the basic needs of plants and animals in order to stay alive (i.e., water, air, food, space).</p>	<p>What is an organism?</p> <p>What does it need to survive?</p> <p>How does a population grow?</p> <p>Can a population endanger itself?</p>
LS2	<p>S:LS2:4:1.1 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.</p> <p>S:LS2:4:1.2 Describe the interaction of living organisms with nonliving things.</p> <p>S:LS2:4:3.1 Recognize that plants and animals interact with one another in various ways besides providing food, such as seed dispersal or pollination.</p>	<p>What forces are at work so that an ecosystem survives?</p> <p>Can any organism survive in another ecosystem?</p> <p>Can an organism survive without other organisms?</p>

Life Science

LS2	<p>S:LS2:4:3.2 Describe ways plants and animals depend on each other (e.g., shelter, nesting, food).</p>	
LS3	<p>S:LS3:4:1.1 Provide examples of how environmental changes can cause different effects on different organisms.</p> <p>S:LS3:4:1.2 Provide examples of how an organism’s inherited characteristics can adapt and change over time in response to changes in the environment.</p> <p>S:LS3:4:1.3 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).</p>	<p>How does an ecosystem adapt?</p> <p>Is change permanent in adaptation?</p> <p>Do all species adapt?</p>
LS4	<p>S:LS4:4:1.1 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.</p> <p>S:LS4:4:1.2 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.</p> <p>S:LS4:4:1.3 Recognize behaviors that may be unsafe or unhealthy for themselves and others.</p> <p>S:LS4:4:2.1 Explain how the amount of rest and the types of food, exercise and recreation humans choose can influence and affect their well-being.</p>	<p>In what ways are humans alike and different from other species?</p> <p>What makes humans unique?</p> <p>What does it mean to choose?</p> <p>Do all species make choices?</p> <p>What choices do species have and do they make the best choices for their survival?</p>

Life Science

LS4	<p>S:LS4:4:2.2 Recognize that vitamins and minerals are needed in small amounts and are essential to maintain proper health.</p> <p>S:LS4:4:2.3 Explain how proper food preparation and appropriate food handling practices can maintain the safety and quality of food.</p> <p>S:LS4:4:3.1 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(K-4)FAF-8]</p> <p>S:LS4:4:3.2 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(K-4)POC-9]</p> <p>S:LS4:4:3.3 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.</p>	
LS5	<p>S:LS5:4:1.1 Recognize that man uses various mechanical devices to record and describe living organisms.</p> <p>S:LS5:4:2.1 Demonstrate the use of appropriate tools and simple equipment, such as thermometers, magnifiers and microscopes to gather data and extend the senses.</p>	<p>What is a tool?</p> <p>How and what tools are used to guide humans in their survival?</p> <p>How has technology changed life for humans?</p>

Life Science

LS5	<p>S:LS5:4:3.1 Recognize that medical technology provides information about a body's condition, such as determining blood pressure, and recognizing the need to repair, replace and support the affected body parts.</p> <p>S:LS5:4:3.2 Recognize that biotechnology refers to the different ways humans modify the living environment to meet their needs, including growing food, genetic engineering and using living organisms such as yeast to prepare foods.</p> <p>S:LS5:4:4.1 Identify some jobs/careers that require knowledge and use of life science content and/or skills.</p>	Are there community members who use science in their daily jobs?
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Life Science

Essential Vocabulary	
<u>CONTENT</u>	<u>INQUIRY</u>
Natural resources	Describe
Conservation	Compare
Offspring	Observe
Organism	Measure
Photosynthesis	Data
Predator	Collect
Prey	Composed
Carnivore	Physical properties
Herbivore	Sort
Consumer	Classify
producer	Recognize
Decomposer	Explain
Ecosystem	Evidence
Energy pyramid	Categorize
Food chain	Identify
Habitat	Draw conclusions
organ	Magnify
Population	Differentiate
Tissue	
System	

Life Science

Suggested Resources/ Activities

Incomplete and Complete Metamorphosis

Photosynthesis, Exploring Ecosystems (Discover plants, animals & the interactions of 3 different ecosystems). What is a Desert?

Spider Webs, (Camouflage, Bird Songs), Coral Reef. Again, exploring the interactions of 3 different ecosystems.

Extreme Places

View from Space (pics of Earth from shuttle).

Types of land – 2-20 different landforms from atolls to waterfalls, how shaped, and what it would be like to live there.

Energy Pyramid – Pond Ecosystem, Coral Reef, 3 ecosystems interactions (again).

Fun with food webs.

How a fossil forms. Types of land and what are landforms.

How Ice Cracks Rock. Soil formation, Layers of Soil.

Different Kinds of Resources – Weather Map, Hubble Telescope,

Solar System, Water Cycle, Lunar Eclipse, Change of Seasons.

Mass – How to measure mass, Chemical Mixtures. Can we measure heat?

How a Battery Works, Forces at Work, Sun's Position, Magnetic Poles,
Can you tell when play is work?

Life Science

Web Sites

<http://learningcenter.nsta.org>

Khan Academy

Science for Nerds

www.ncsu.edu/imse/4/elementaryEd.htm

Harcourt Science Series

<http://www.education.nh.gov/instruction/curriculum/science/index.htm>

(Science Curriculum Website)

<http://www.education.nh.gov/instruction/assessment/necap/released/index.htm>

(Science NECAP- Released items)

Biographies

John Bartram – Father of Botony

Clarence Birdseye – Frozen Foods

George Washington Carver – Crop Rotation/peanuts, cotton

Alice Eastwood – Dried Plants

Anton van Leeuwenhoek – Better microscope, 1st to study pond water, saliva, plaque, tiny insects, red blood cells.

Cyrus McCormick – Mechanical Reaper

Norbert Rillieux - refining sugar mechanically.

Robert Ballard – Oceanographer, found Titanic.

Eli Whitney – Cotton Gin, other mass production machinery.

GRADE: 3

Life Science

Jane Goodall – Anthropologist

Charles Babbage – Engineer, modern computer (1800's).

Augusta King – Mathematician

Edward Lorenze – Meteorologist/mathematical formulas to predict weather.

Physical Science

	Standards	Guiding Questions
PS1	<p>S:PS1:4:1.1 Explain that materials may be composed of parts that are too small to be seen without magnification.</p> <p>S:PS1:4:1.2 Use measures of weight (data) to demonstrate that the whole equals the sum of its parts.</p> <p>S:PS1:4:2.1 Recognize that substances can be classified by observable properties.</p> <p>S:PS1:4:2.2 Explain that some materials can exist in different states; and describe the distinct physical properties of each state of matter.</p> <p>S:PS1:4:2.3 Explain how some materials, such as water, can change from one state to another by heating or cooling.</p> <p>S:PS1:4:2.4 Make a prediction about what might happen to the state of common materials when heated or cooled; or categorize materials as solid, liquid, or gas.</p> <p>S:PS1:4:2.5 Collect and organize data about physical properties in order to classify objects or draw conclusions about objects and their characteristic properties (e.g., temperature, color, size, shape, weight, texture, flexibility).</p>	<p>How can matter be measured?</p> <p>How tall am I?</p> <p>Why would we classify matter?</p> <p>How can water support weight?</p>

Physical Science

PS2	<p>S:PS2:4:3.1 Identify the various forms of energy, such as electrical, light, heat, sound.</p> <p>S:PS2:4:3.2 Recognize that electricity in circuits can produce light, heat, sound, and magnetic effects.</p> <p>S:PS2:4:3.3 Identify and describe the organization of a simple circuit.</p> <p>S:PS2:4:3.4 Differentiate between objects and materials that conduct electricity and those that are insulators of electricity.</p>	<p>How can heat be measured?</p> <p>Can you tell when play is work?</p> <p>How do the magnetic poles interact with one another?</p>
PS3	<p>S:PS3:4:1.1 Recognize that magnets attract certain kinds of other materials; and classify objects by those magnets will attract and those they will not.</p> <p>S:PS3:4:1.2 Recognize that magnets attract and repel each other.</p> <p>S:PS3:4:1.3 Explain that electrically charged material pulls on all other materials and can attract or repel other charged materials.</p> <p>S:PS3:4:1.4 Recognize that the Earth’s gravitational force pulls any object toward it.</p> <p>S:PS3:4:1.5 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).</p>	<p>How do the magnetic poles interact with other materials?</p>

Physical Science

PS4	<p>S:PS4:4:1.1 Understand that materials are used in certain products based on their properties, such as strength and flexibility.</p> <p>S:PS4:4:1.2 Recognize that products are made using a combination of technologies, such as how an escalator uses both a pulley system and an electrical motor.</p> <p>S:PS4:4:3.1 Give examples of transportation systems used in New Hampshire, such as buses, trains, cars, and bicycles; and describe the sources of energy they use.</p> <p>S:PS4:4:3.2 Explain that manufactured products are designed to solve a problem or meet a need.</p> <p>S:PS4:4:3.3 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.</p> <p>S:PS4:4:4.1 Identify some jobs/careers that require knowledge and use of physical science content and/or skills.</p>	<p>How does a door knob work?</p> <p>What products are manufactured here in NH and what needs have they met?</p> <p>What natural materials could you use to create a product that would fill a need?</p> <p>How are materials changed into finished products?</p>
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Physical Science

Essential Vocabulary	
<u>CONTENT</u>	<u>INQUIRY</u>
Weight	Describe
Sum	Compare
Flexibility	Observe
Meter	Measure
Metric ruler	Data
Temperature	Collect
Graduated cylinder	Composed
Balance	Physical properties
Spring scale	Sort
Beaker	Classify
Solid	Recognize
Product	Explain
Manufacture	Evidence
	Categorize
Liquid	Identify
Gas	Draw conclusions
Matter	Magnify
Microscope	Differentiate
Volume	
Heat	
Conductor	
Energy	
Sound	
Pitch	
Light	
Reflect	

Physical Science

Suggested Resources/ Activities

Web Sites:

Scithon.terc.edu

Nasa.gov/audience/forkids

Energyquest.ca.gov/projects

<http://learningcenter.nsta.org>

www.ncsu.edu/imse/4/elementaryEd.htm

Khan Academy

Science for Nerds

Harcourt Science Series (online)

<http://www.education.nh.gov/instruction/curriculum/science/index.htm>

(Science Curriculum Website)

<http://www.education.nh.gov/instruction/assessment/necap/released/index.htm>

(Science NECAP- Released items)

Activities:

Pbskids.org/zoom/activities/sci Playing with, exploring, collecting, handling, sorting, and classifying objects.

Using graphic organizers and other strategies to motivate, organize, and identify the questions children as about the world.

Using tools (non-standard measures, rulers, magnifiers, etc.) to enhance observations, collect, represent and interpret data.

Physical Science

Biographies

Clarence Birdseye - naturalist

Albert Einstein - thinker

Enrico Fermi – splitting atoms

Lise Meitner – nuclear energy

Ernest Rutherford – Found and Named the Nucleus

Chien-Shung Wu – “Ignore the obstacles.....just put your head down and keep walking forward.”

Alexander Graham Bell – telephone & speaking machine for the deaf

Benjamin Bradley – steam powered warship

Henry Ford - automobile

Robert Fulton – stone cutter & rope machine

Robert Goddard - rocketry

Isaac Newton – forces of gravity

Orville & Wilbur Wright – engine powered plane

Granville Woods – railway telegraph

Otis Boykin – pacemaker

Johannes Gutenberg – Printing Press

GRADE: 3

Physical Science