

Somers Point School District

Curriculum

Science

Grade 5

July 2010

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Somers Point Schools

Mission and Beliefs

Mission

Empower each student to make responsible choices, meet challenges, achieve personal success, and to contribute to a global society as they apply the New Jersey Core Curriculum Standards to become autonomous, lifelong learners who are literate, problem solvers across all disciplines.

Beliefs

Beliefs: We believe that our empowered learners:

- Participate in educational programs that are designed to meet the needs of learners while providing challenging activities in the context of real life situations.
- Are aware of community issues and take part in activities to better their community.
- Acquire basic skills in obtaining information, thinking critically, solving problems and communicating effectively.
- Develop intellectual curiosity and the ability to access information as needed
- Become reflective learners that have an understanding of their own strengths and weaknesses.
- Develop the aptitudes and skills to adjust to a changing world and an unpredictable future.
- Are lifetime learners who value and accept learning as a continuing and dynamic process affecting all aspects of life.

PROGRAM PHILOSOPHY, GOALS, AND BELIEFS

Philosophy

An effective science curriculum...

- Reflects the belief that all students can and must learn enough science to assume their role as concerned citizens equipped with necessary information and decision-making skills;
- Reflects a nature of knowledge, pedagogy, and nature of human development linked to empirical research;
- Recognizes that an inquiry-based method is used to study sound science content;
- Encourages teachers to view that the study of science should be interesting and relevant to students' lives, emphasize student understanding through inquiry and be connected with other school subjects especially math.

Unifying Concepts and Processes

An effective science curriculum incorporates the following while addressing the content areas...

1. Systems, order and organizations
2. Evidence, models and explanation
3. Changes, constancy and measurement
4. Evolution and equilibrium
5. Form and function
6. Abilities to do and understanding of scientific inquiry
7. Technology
8. Social perspective

Educational Goals & Beliefs

- Inquiry is an effective method to actively involve students.
- All students share a natural curiosity about the world around them.
- Curriculum provides real world connections.
- Effective instruction integrates concepts within science and other content areas.
- Assessment is ongoing, diagnostic, and aligned with instruction.
- Students can improve their community and the world through problem-solving.
- The broad goal of a science program should be to foster understanding, interest, and appreciation of the world in which we live.

New Jersey State Department of Education Core Curriculum Content Standards

Science Education in the 21st Century

"Today more than ever before, science holds the key to our survival as a planet and our security and prosperity as a nation" (Obama, 2008).

Scientific literacy assumes an increasingly important role in the context of globalization. The rapid pace of technological advances, access to an unprecedented wealth of information, and the pervasive impact of science and technology on day-to-day living require a depth of understanding that can be enhanced through quality science education. In the 21st century, science education focuses on the practices of science that lead to a greater understanding of the growing body of scientific knowledge that is required of citizens in an ever-changing world.

Mission: *Scientifically literate students possess the knowledge and understanding of scientific concepts and processes required for personal decision-making, participation in civic and cultural affairs, and economic productivity.*

Vision: A quality science education fosters a population that:

- Experiences the richness and excitement of knowing about the natural world and understanding how it functions.
- Uses appropriate scientific processes and principles in making personal decisions.
- Engages intelligently in public discourse and debate about matters of scientific and technological concern.
- Applies scientific knowledge and skills to increase economic productivity.

Then 2009 NJ science standards can be accessed at: <http://www.njcccs.org/ContentAreaTabularView.aspx?code=5&Desc=Science>

In addition, the New Jersey Standards Clarification Project provides materials that convey an understanding of the priorities in the NJ CCCS and how to capture those priorities in designing local curriculum and assessments, as well as in managing local instruction across content areas.

To access the NJ Standards Clarification Project: <http://www.state.nj.us/education/aps/njscp/>

Assessment Note:

All 4th & 8th grade students take the state end of year assessment the NJ ASK or the Alternative Proficiency Assessment when applicable.

Science Grade Five

Scope and Sequence

Ecosystems

Diversity and Biological Evolution
Earth's properties and Materials
Natural Systems and Interactions
Human Interactions and Impact

Mixtures and Solutions

Structures and properties of matter
Chemical reactions

Levers and Pulleys

Motions and forces

Landforms

How we study Earth
Natural systems and Interactions
Human interactions and impact

Science Practices – Standard 5.1

The New Jersey Core Curriculum (2009) includes Science Practices (standard 5.1). This standard embodies the idea of “knowledge in use” and includes understanding scientific explanations, generating scientific evidence, reflecting on scientific knowledge, and participating productively in science. Science practices are integrated into the Cumulative Progress Indicators within each science domain in recognition that science content and processes are inextricably linked; science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge.

5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.

A. Understand Scientific Explanations : Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.

B. Generate Scientific Evidence Through Active Investigations : Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.

C. Reflect on Scientific Knowledge : Scientific knowledge builds on itself over time.

D. Participate Productively in Science : The growth of scientific knowledge involves critique and communication, which are social practices that are governed by a core set of values and norms.

The Somers Point School District curriculum weaves these standards into each science unit of study. Through our hands-on, inquiry based approach to science content, students cover each area of standard 5.1 listed above.

Suggested blocks of Instruction	Grade Level/Subject: 5th Grade Science	Big Idea: The natural world is defined by organisms and life processes which conform to principles regarding conservation and transformation of matter and ecan be applied to improving human health and well being.	
		Topic: Diversity and biological evolution	
		Goal 1: The student will be able to describe characteristics, structure, and basic needs of organisms.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions / Enduring Understandings	Learning Activities including technology integration, interdisciplinary activities, and differentiation methods / Materials / Assessment
2 weeks/40 min./day	<p>5.3.6.D.1 Reproduction is essential to the continuation of every species.</p> <p>5.3.6.D.2 Variations exist among organisms of the same generation (e.g., siblings) and of different generations (e.g., parent to offspring).</p> <p>5.4.6.G.2. An ecosystem includes all of the plant and animal populations and nonliving resources in a given area. Organisms interact with each other and with other components of an ecosystem.</p>	<p>Essential Questions: How are organisms of the same kind different from each other? How does this help them reproduce and survive?</p> <p>Enduring Understandings: Organisms are grouped in nature based upon similarities</p>	<p>Learning Activities STC book – ecosystems Investigations</p> <p>Materials: STC book – ecosystems pages 11-13 See investigation supply list</p> <p>Assessment: Student response sheets Student worksheets Labs Chapter test Benchmark assessments Teacher observation</p>

Suggested blocks of Instruction	Grade Level/Subject: 5th Grade/Science	Big Idea: Earth's dynamic systems are made up of the geosphere, hydrosphere, atmosphere and biosphere. Interactions among these spheres have resulted in ongoing changes to the system. Some of these changes can be measured on human time scale, but others occur so slowly, that they must be inferred from geological evidence.	
		Topic: Earth's properties and materials	
		Goal 2: The student will be able to understand the structure, dynamics, and geophysical systems of the Earth.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions / Enduring Understandings	Learning Activities including technology integration, interdisciplinary activities, and differentiation methods / Materials / Assessment
2 weeks/40 min/day	<p>5.4.6.C.1 Soil attributes/properties affect the soil's ability to support animal life and grow plants.</p> <p>5.4.6.C.2 The rock cycle is a model of creation and transformation of rocks from one form (sedimentary, igneous, or metamorphic) to another. Rock families are determined by the origin and transformations of the rock.</p> <p>5.4.6.C.3 Rocks and rock formations contain evidence that tell a story about their past. The story is dependent on the minerals, materials, tectonic conditions, and erosion forces that created them.</p> <p>5.4.6.B.4 Erosion plays an important role in the formation of soil, but too much erosion can wash away fertile soil from ecosystems, including farms.</p>	<p>Essential Questions:</p> <ul style="list-style-type: none"> How does understanding the properties of Earth materials and the physical laws that govern behavior lead to predictions of Earth events? <p>Enduring Understandings:</p> <ul style="list-style-type: none"> Earth systems can be broken down into individual components which have observable measurable properties. 	<p>Learning Activities</p> <p>Teacher guide L02 Investigations Materials: Teacher guide pgs 13-24 See investigation supply list</p> <p>Assessment:</p> <p>Student response sheets Student worksheets Labs Chapter test Benchmark assessments Teacher observation</p>

Suggested blocks of Instruction	Grade Level/Subject: 5th Grade/Science	Big Idea: Organisms are linked to one another in an ecosystem by the flow of energy and the cycling of materials. Humans are an integral part of the natural system and human activities can alter the stability of ecosystems.	
		Topic: Natural systems and interactions	
		Goal 3: The student will be able to develop an understanding of the environment as a system of interdependent components affected by human activity and natural phenomena.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions / Enduring Understandings	Learning Activities including technology integration, interdisciplinary activities, and differentiation methods / Materials / Assessment
2 weeks/40 min/day	<p>5.3.6.B.1 Plants are producers: They use The energy from light to make food (sugar) from carbon dioxide and water. Plants are used as a source of food (energy) for other organisms.</p> <p>5.3.6.B.2 All animals, including humans, are consumers that meet their energy needs by eating other organisms or their products.</p> <p>5.4.6.G.2 An ecosystem includes all of the plant and animal populations and nonliving resources in a given area. Organisms interact with each other and with other components of an ecosystem.</p>	<p>Essential Questions:</p> <ul style="list-style-type: none"> • How can change in one part of an ecosystem affect change in other parts of the ecosystem? <p>Enduring Understandings:</p> <ul style="list-style-type: none"> • Organisms and their environments are interconnected. • Changes in one part of the system will affect other parts of the system. 	<p>Learning Activities</p> <p>Ecosystems Lessons STC book Investigations</p> <p>Materials:</p> <p>Ecosystems lessons 1-17 STC book pgs 7-61 See investigation supply list</p> <p>Assessment:</p> <p>Student response sheets Student worksheets Labs Chapter test Benchmark assessments Teacher observation</p>

Suggested blocks of Instruction	Grade Level/Subject: 5th Grade/Science	Big Idea: Organisms are linked to one another in an ecosystem by the flow of energy and the cycling of materials. Humans are an integral part of the natural system and human activities can alter the stability of ecosystems.	
		Topic: Human Interactions and Impact	
		Goal 4: The student will be able to recognize the impact of human activities on various ecosystems	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions / Enduring Understandings	Learning Activities including technology integration, interdisciplinary activities, and differentiation methods / Materials / Assessment
2 weeks/40 min per day	<p>5.4.6.G.3 Personal activities impact the local and global environment</p> <p>5.2.6.C.1 Light travels in a straight line until it interacts with an object or material. Light can be absorbed, redirected, bounced back, or allowed to pass through. The path of reflected or refracted light can be predicted</p> <p>5.2.6.C.2 Visible light from the Sun is made up of a mixture of all colors of light. To see an object, light emitted or reflected by that object must enter the eye.</p>	<p>Essential Questions:</p> <ul style="list-style-type: none"> How do humans impact the diversity and stability of ecosystems? <p>Enduring Understandings:</p> <ul style="list-style-type: none"> Humans can alter the living and non-living factors within an ecosystem, thereby creating changes to the overall system. 	<p>Learning Activities</p> <p>Ecosystems lessons STC book pgs 7-61</p> <p>Materials:</p> <p>Lessons 1-17 STC books pgs 7-61 See investigation supply list</p> <p>Assessment:</p> <p>Student response sheets Student worksheets Labs Chapter test Benchmark assessments Teacher observation</p>

Suggested blocks of Instruction	Grade Level/Subject: 5th Grade/Science	Big Idea: Materials exist throughout our physical world. The structures of materials influence their physical properties, chemical reactivity and use.	
		Topic: Structures and properties of matter	
		Goal 5: The student will be able to recognize the elements and identify materials made from them.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions / Enduring Understandings	Learning Activities including technology integration, interdisciplinary activities, and differentiation methods / Materials / Assessment
34-45 min periods.	<p>5.2.6.B.1 When a new substance is made by combining two or more substances, it has properties that are different from the original substances.</p> <p>5.2.6.A.1 The volume of some objects can be determined using liquid (water) displacement.</p> <p>5.2.6.A.3 Pure substances have characteristic intrinsic properties, such as density, solubility, boiling point, and melting point, all of which are independent of the amount of the sample.</p>	<p>Essential Question</p> <ul style="list-style-type: none"> How do properties of materials determine their use? <p>Enduring Understandings:</p> <ul style="list-style-type: none"> The structures of materials determine their properties. Mixtures combine two or more materials that retain their own properties Solubility can be reached through varying circumstances. Concentration can be determined using a variety of methods. Reactions result in new products. 	<p>Learning Activities</p> <p>Investigation 1-Seperating Mixtures Investigation 2 – Reaching Saturation Investigation 3- Concentration Investigation 4 – Fizz Quiz Story – Ask a Chemist, The Periodic Table Stories pages 1-6, 21-30 Materials: Mixture and Solution lab directions and supplies Story book Student worksheets See supply list for investigations</p> <p>Assessment: Completion of lab Quiz (including vocabulary) Teacher observation Completion of student pages Student response sheets Unit test</p>

Suggested blocks of Instruction	Grade Level/Subject: 5th Grade/Science	Big Idea: Materials exist throughout our physical world. The structures of materials influence their physical properties, chemical reactivity and use.	
		Topic: Chemical Reactions	
		Goal 6: The student will be able to successfully combine two or more elements.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions / Enduring Understandings	Learning Activities including technology integration, interdisciplinary activities, and differentiation methods / Materials / Assessment
34-45 minutes	5.2.6.A.1 The volume of some objects can be determined using liquid (water) displacement. 5.2.6.B.1 When a new substance is made by combining two or more substances, it has properties that are different from the original substances.	Essential Questions: <ul style="list-style-type: none"> What determines the type and extent of a chemical reaction? Enduring Understandings: <ul style="list-style-type: none"> There are several ways in which elements and compounds react to form new substances and each reaction involves the flow of energy. Some products of a reaction are soluble, but aren't immediately observable. 	Learning Activities Investigation 1-Seperating Mixtures Investigation 2 – Reaching Saturation Investigation 3- Concentration Investigation 4 – Fizz Quiz <ul style="list-style-type: none"> Science Stories- What A Reaction, What is Matter Made Of? Foss websites Materials: Web movie – What's a reaction? Computers Lab Supplies for each investigation Assessment: Participation in lab Consistent lab results Student response sheets Teacher observation Student worksheets

Suggested blocks of Instruction	Grade Level/Subject: 5th Grade/Science	Big Idea: The flow of energy drives processes of change in all biological, chemical, physical and geological systems. The conservation of energy is a law that can be used to analyze and build understandings of diverse physical and biological systems. The study of science and technology is interrelated and as such can assist in solving problems.	
		Topic: Motions and Forces	
		Goal 7: The student will be able to develop an understanding of natural laws that apply to motion and forces.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions / Enduring Understandings	Learning Activities including technology integration, interdisciplinary activities, and differentiation methods / Materials / Assessment
8 week s/ 40 min/d ay	<p>5.2.6.A.2 The density of an object can be determined from its volume and mass.</p> <p>5.2.6.A.3 Pure substances have characteristic intrinsic properties, such as density, solubility, boiling point, and melting point, all of which are independent of the amount of the sample.</p> <p>5.2.6.E.1 An object's position can be described by locating the object relative to other objects or a background. The description of an object's motion from one observer's view may be different from that reported from a different observer's view.</p>	<p>Essential Questions:</p> <ul style="list-style-type: none"> How would the universe be different if one or more of the laws of motion were suspended? <p>Enduring Understandings:</p> <ul style="list-style-type: none"> The same basic rules govern the motion of all bodies, from planets and stars to birds and billiard balls. Different types of levers serve different functions Levers are simple machines that people use to gain advantage The number of pulleys effects the effort needed to lift a load <p>Essential Questions:</p> <ul style="list-style-type: none"> How is the overarching concept of systems related to design and technology? <p>Enduring Understandings: Thinking systematically means looking for the relationships between parts</p>	<p>Learning Activities</p> <ul style="list-style-type: none"> Investigation 1- levers Investigation 2- More leverage Investigation 3 – Pulleys Investigation 4 – Pulleys at Work Science stories – Simple Machines, Class-1 levers, Class 2 levers, Class 3 levers, The Inclined Plane, Pulleys, The Wedge, The Screw, Wheel and Axle <p>Materials: Levers and Pulleys text Book: Simple Machines See investigations for supply list Computers Resource pgs 50-52, 70-74, 60-69</p> <p>Assessment: Informal Observations Student response sheets Student worksheets Labs Chapter test Benchmark assessments</p>

Suggested blocks of Instruction	Grade Level/Subject: 5th Grade/Science	Big Idea: Earth's dynamic systems are made up of the geosphere, hydrosphere, atmosphere and biosphere. Interactions among these spheres have resulted in ongoing changes to the system. Some of these changes can be measured on human time scale, but others occur so slowly, that they must be inferred from geological evidence.	
		Topic: How We Study Earth	
		Goal 8: The student will be able to use maps to interpret topographical features.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions / Enduring Understandings	Learning Activities including technology integration, interdisciplinary activities, and differentiation methods / Materials / Assessment
2 week s/40 min/d ay	<p>5.4.6.D.1 Lithospheric plates consisting of continents and ocean floors move in response to movements in the mantle.</p> <p>5.4.6.D.3 Earth has a magnetic field that is detectable at the surface with a compass</p> <p>5.4.6.D.2 Earth's landforms are created through constructive (deposition) and destructive (erosion) processes.</p> <p>5.4.6.B.2 Earth's current structure has been influenced by both sporadic and gradual events. Changes caused by earthquakes and volcanic eruptions can be observed on a human time scale, but many geological processes, such as mountain building and the shifting of continents, are observed on a geologic time scale.</p>	<p>Essential Questions:</p> <ul style="list-style-type: none"> • How does technology extend human senses and understanding of Earth? <p>Enduring Understandings:</p> <ul style="list-style-type: none"> • Technology enables us to better understand Earth's systems and the impact of Earth's systems on human activity. 	<p>Learning Activities</p> <p>Investigation 1 2, 4, parts 1-3 FOSS Science stories</p> <p>Materials:</p> <p>Topographical maps Science story books See investigation 1,2,4 supply list Computers Google Earth website</p> <p>Assessment:</p> <p>Student response sheets Student worksheets Labs Chapter test Benchmark assessments</p>

Suggested blocks of Instruction	Grade Level/Subject: 5th Grade/Science	Big Idea: Organisms are linked to one another in an ecosystem by the flow of energy and the cycling of materials. Humans are an integral part of the natural system and human activities can alter the stability of ecosystems.	
		Topic: Natural systems and interactions	
		Goal 9: The student will be able to understand the interdependence of human activity and natural phenomena over time.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions / Enduring Understandings	Learning Activities including technology integration, interdisciplinary activities, and differentiation methods / Materials / Assessment
2 weeks/40 min/day	5.4.6.C.1 Soil attributes/properties affect the soil's ability to support animal life and grow plants. 5.4.6.C.2 The rock cycle is a model of creation and transformation of rocks from one form (sedimentary, igneous, or metamorphic) to another. Rock families are determined by the origin and transformations of the rock.	Essential Questions: <ul style="list-style-type: none"> How can change in one part of an ecosystem affect change in other parts of the ecosystem? Enduring Understandings: <ul style="list-style-type: none"> Organisms and their environments are interconnected. Changes in one part of the system will affect other parts of the system. 	Learning Activities Investigation 2, parts 1-2 Investigation 3, parts 1-2 Science story pages 15-19, 22-29 Materials: Landform student text See investigation supply list for each investigation Science story book Assessment: Student response sheet Unit test Student response sheets Student worksheets Labs Chapter test Benchmark assessments Teacher observation

Suggested blocks of Instruction	Grade Level/Subject: 5th Grade/Science	Big Idea: Organisms are linked to one another in an ecosystem by the flow of energy and the cycling of materials. Humans are an integral part of the natural system and human activities can alter the stability of ecosystems.	
		Topic: Human Interactions and impact	
		Goal 10: The student will be able to describe and evaluate the impact of human activities on the environment.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions / Enduring Understandings	Learning Activities including technology integration, interdisciplinary activities, and differentiation methods / Materials / Assessment
2 weeks/40 min per day	5.10.6 B.1 – Describe the effect of human activities on various ecosystems 5.10.6 B 2 – Evaluate the impact of personal activities on the local environment.	Essential Questions: <ul style="list-style-type: none"> How do humans impact the diversity and stability of ecosystems? Enduring Understandings: <ul style="list-style-type: none"> Humans can alter the living and non-living factors within an ecosystem, thereby creating changes to the overall system. 	Learning Activities Science story Various websites Movie Materials: Science story pages 13-14, 43-44 United streaming computers Assessment: Student response sheets Student worksheets Labs Chapter test Benchmark assessments Teacher observation

Suggested blocks of Instruction	Grade Level/Subject: 5th Grade Science	Big Idea: The natural world is defined by organisms and life processes which conform to principles regarding conservation and transformation of matter and energy and can be applied to improving human health and well-being.	
		Topic: Diversity and biological evolution	
		Goal 11: The student will be able to describe characteristics, structure, and basic needs of organisms.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions / Enduring Understandings	Learning Activities including technology integration, interdisciplinary activities, and differentiation methods / Materials / Assessment
2 weeks/40 min./day	<p>5.3.6.D.1 Reproduction is essential to the continuation of every species.</p> <p>5.3.6.D.2 Variations exist among organisms of the same generation (e.g., siblings) and of different generations (e.g., parent to offspring).</p> <p>5.4.6.G.2. An ecosystem includes all of the plant and animal populations and nonliving resources in a given area. Organisms interact with each other and with other components of an ecosystem.</p>	<p>Essential Questions: How do humans impact the diversity and stability of ecosystems?</p> <p>Enduring Understandings: Humans can alter the living and non-living factors within an ecosystem, thereby creating changes to the</p>	<p>Learning Activities STC book – ecosystems Investigations</p> <p>Materials: STC book – ecosystems pages 11-13 See investigation supply list</p> <p>Assessment: Student response sheets Student worksheets Labs Chapter test Benchmark assessments Teacher observation</p>

Suggested blocks of Instruction	Grade Level/Subject: 5th Grade/Science	Big Idea: Earth's dynamic systems are made up of the geosphere, hydrosphere, atmosphere and biosphere. Interactions among these spheres have resulted in ongoing changes to the system. Some of these changes can be measured on human time scale, but others occur so slowly, that they must be inferred from <u>geological evidence</u> .	
		Topic: Earth's properties and materials	
		Goal 12: The student will be able to understand the structure, dynamics, and geophysical systems of the Earth.	
	Objectives / Cluster Concepts / Cumulative Progress Indicators (CPI's) The student will be able to:	Essential Questions / Enduring Understandings	Learning Activities including technology integration, interdisciplinary activities, and differentiation methods / Materials / Assessment
2 weeks/40 min/day	<p>5.4.6.C.1 Soil attributes/properties affect the soil's ability to support animal life and grow plants.</p> <p>5.4.6.C.2 The rock cycle is a model of creation and transformation of rocks from one form (sedimentary, igneous, or metamorphic) to another. Rock families are determined by the origin and transformations of the rock.</p> <p>5.4.6.C.3 Rocks and rock formations contain evidence that tell a story about their past. The story is dependent on the minerals, materials, tectonic conditions, and erosion forces that created them.</p> <p>5.4.6.B.4 Erosion plays an important role in the formation of soil, but too much erosion can wash away fertile soil from ecosystems, including farms.</p>	Essential Questions: <ul style="list-style-type: none"> How does understanding the properties of Earth materials and the physical laws that govern behavior lead to predictions of Earth events? Enduring Understandings: <ul style="list-style-type: none"> Earth systems can be broken down into individual components which have observable measurable properties. 	Learning Activities Teacher guide L02 Investigations Materials: Teacher guide pgs 13-24 See investigation supply list Assessment: Student response sheets Student worksheets Labs Chapter test Benchmark assessments Teacher observation

Fifth Grade Science

COURSE BENCHMARKS

The student will be able to ...

Ecosystems

Describe and give examples of the categories and shared characteristics of organisms.
Compare and contrast characteristics of organisms
Use Safety first!
Observe properties of soil and their variability from place to place affects soil's ability to support life
Explain how organisms interact with the ecosystem
Explain major events in science history
Describe the effect of human activities on the ecosystem

Mixtures and Solutions

Recognize that 100 elements have been found and most materials on Earth are made from them
Describe properties of mixtures and solutions
Measure physical characteristics of a sample
Recognize evidence of a chemical change
Collect, organize and interpret data
Perform math computations

Levers & Pulleys

Recognize that an object at rest will remain at rest
Recognize that motion can be retarded by friction and air resistance
Recognize that everything near Earth is pulled by gravitational forces
Identify questions and make predictions
Design and conduct investigations
Know that scientists are men and women from unique cultures

Landforms

Use map projection tools to interpret features of Earth's surface
Evaluate data, claims, and arguments
Recognize that theories reflect the political and social climate
Describe natural process that occur over time where human impact is minimal
Construct graphs from data gathered
Describe the effects of personal activities on the local environment