

Seymour Public Schools Curriculum

Grade Three Science Curriculum

The Seymour School District believes that every student needs and deserves a rich and challenging education in science. Quality education in science is an integral part of the core curriculum for our students. Students should be enabled to achieve the learning goals and standards outlined in Connecticut's science framework.

Such an education will promote essential understandings of the natural world and nurture student's abilities to apply scientific knowledge to make informed and logical judgments about personal and societal issues. Such an education requires that the fundamental approach to science is a creative process for investigating, reasoning, critiquing and communicating about ideas, not as a static body of facts to be memorized.

We believe that learning science is important for all students in order to prepare them to be informed individuals and citizens and to participate in a wide range of scientific and technological careers. Understanding the interconnections between science and technology, and their shared impact on environmental and societal issues, is essential in order to preserve and improve life on Earth.

Learning experiences in science should lead all students to:

- ❖ Understand and apply basic concepts, principles and theories of biology, chemistry, physics, earth and space sciences and their interrelationships;
- ❖ Recognize and participate in scientific endeavors which are evidence based and use inquiry skills that lead to a greater understanding of the world;
- ❖ Identify and solve problems through scientific exploration, including the formulation of hypotheses, design of experiments, use of technology, analysis of data and drawing of conclusions;
- ❖ Select and use properly appropriate laboratory technology, equipment and material, including measuring and sensing devices;
- ❖ Understand and use existing and emerging technologies which have an effect on society and the quality of life, including personal academic and work environments;
- ❖ Analyze the possibilities and limits of science and technology in order to make and defend decisions about societal issues; and
- ❖ Understand that the way in which scientific knowledge is formulated is crucial to the validity of that knowledge.

Teachers plan units and lessons that contain current, accurate and meaningful content that is aligned with the district curriculum. Through professional development, teachers keep up-to-date with the latest scientific advances in their discipline. They set a context for scientific learning that is relevant to students in class. Engaging students in extended, where developmentally appropriate scientific investigations that motivate student effort and interest in scientific learning are planned. Students are provided with a safe environment in which to participate in scientific investigations and have the resources needed to support their learning;

Seymour Public Schools Curriculum

Students are assessed regularly to build an understanding instruction is adjusted to accommodate students with diverse needs, abilities and interests. Students are encouraged to pursue the study of advanced science and science-related careers.

Parents play an essential role in ensuring a quality educational program in science by encouraging their children to participate in high-level science courses and activities, both in and out of school and to talk to their children about science they learn at school and showing interest in scientific content, processes and ideas, and by providing their children with access to science resources, such as museums, libraries and the Internet.

CMT

The science portion of the test is administered to students in Grades 5 and 8. The CMT science assessments measure what students have learned over several years about core science concepts and about how scientific inquiry is done. The assessments include questions related to concepts in life science, physical science and earth science and how those concepts apply to real world issues and technologies.

EMBEDDED TASKS

To assess students' understanding of inquiry and the nature of science, the CMT science assessment includes some questions framed within the CONTEXT of the curriculum-embedded performance tasks developed by the Connecticut State Department of Education. The embedded tasks engage students in focused explorations of science concepts using all the inquiry practices described in the science framework. Each embedded task is designed to be part of a larger learning unit described in the science framework, and teachers decide when and how to incorporate them into the curriculum. These inquiry investigations demonstrate how students use science inquiry practices to deepen understanding of a science concept.

CSDE 2008

Seymour Public Schools Curriculum

Grade 3 Science

3.1 Properties of Matter

August/September/October 26 Days

SUBTOPIC	DAYS	LESSON/ASSESSMENT	CT STANDARD	SOURCE
Absorption “Soggy Paper”	1 Day	Experiment 1 – Data Collection	3.1.1 & 3.1.3	CSDE Embedded Task
	2 Days	Experiment 1 – Data Analysis Graphing and Discussion	3.1.1 & 3.1.3	CSDE Embedded Task
	1 Day	Experiment 2 – Planning	3.1.1 & 3.1.3	CSDE Embedded Task
	1 Day	Experiment 2 – Data Collection	3.1.1 & 3.1.3	CSDE Embedded Task
	2 Days	Experiment 2 – Data Analysis Graphing and Discussion	3.1.1 & 3.1.3	CSDE Embedded Task
	1 Day	Communicate Your Learning – Letter Writing	3.1.1 & 3.1.3	CSDE Embedded Task
Investigation 1 – Water Observations	1 Day	Part 1-Looking at Water	3.1.3	FOSS Water Kit
	1 Day	Part 2-Surface Tension	3.1.1	FOSS Water Kit
Investigation 2 – Hot	1 Day	Part 1-Build a Thermometer/Student Sheet	3.1.4; 3.1.9; 3.1.10; 3.1.11	FOSS Water Kit

Seymour Public Schools Curriculum

Water, Cold Water	1 Day	Part 2-Sinking and Floating Water	3.1.4; 3.1.9; 3.1.10; 3.1.11	FOSS Water Kit
	2 Days	Part 3-Water as Ice/Response Sheet Hot Water, Cold Water	3.1.4; 3.1.9; 3.1.10; 3.1.11	FOSS Water Kit
Sinking and Floating	1 Day	Float/Sink a variety of materials in a variety of liquids	3.1.4	<u>The Magic School Bus Ups and Downs; A Book About Floating and Sinking</u>
Dissolving and Accumulating States of Matter Reflect on Water Behavior	1 Day	Observe a variety of materials that will dissolve/not dissolve in water	3.1.2	
	2 Days	KWL of solids, liquids, and gases and how they change forms	3.1.8 & 3.1.10	<u>Emmett's Snowball</u>
	1 Day	Student Response Water Behavior	3.1.8; 3.1.10; 3.1.11	
			3.1.8	RESOURCES NEEDED (Heating and Cooling; States of Matter)

Seymour Public Schools Curriculum

Grade 3 Science

3.2 Heredity and Evolution

November/December ___ Days

SUBTOPIC	DAYS	LESSON/ASSESSMENT	CT STANDARD	SOURCE
Organisms Have Basic Needs	1 Day	Compare/Contrast pets and wild animals focusing on their basic needs	3.2.1-3.2.4	
	1 Day	Plant/Tree Adaptations – Describe how different plants have adaptations to meet their basic needs	3.2.1; 3.2.5; 3.2.6; 3.2.7	Nonfiction trade books listed in curriculum
Animal Adaptations	2 Days	Structure and Function of Bird Beaks Activity 1	3.2.2 & 3.2.3	RESOURCE NEEDED (TDCT Bird Beak Kit sciencekit.com)
	3 Days	Structure and Function of Bird Beaks Activity 2	3.2.2 & 3.2.3	RESOURCE NEEDED (TDCT Bird Beak Kit sciencekit.com)
How Animals Meet Their Needs		Explore and categorize how animals meet their needs	3.2.4	RESOURCE NEEDED (STC Kit – Animal Studies)

Seymour Public Schools Curriculum

Grade 3 Science

3.3 The Changing Earth

January/February ___ Days

SUBTOPIC	DAYS	LESSON/ASSESSMENT	CT STANDARD	SOURCE
Rocks	1 Day/ ongoing	KWL of prior knowledge of rocks Earth Materials have Different Physical and Chemical Properties	3.3.1-3.3.9	<u>The Magic School Bus: Inside the Earth & Rocky Road Trip</u> RESOURCES NEEDED (STC Kit Rocks and Minerals)

Seymour Public Schools Curriculum

Grade 3 Science

3.4 Science and Technology

March/April/May __ Days

SUBTOPIC	DAYS	LESSON/ASSESSMENT	CT STANDARD	SOURCE
Conservation of Resources		There are many natural resources however, the supply of natural resources is limited and we need to reduce, reuse, and recycle.	3.4.1-3.4.8	RESOURCES NEEDED (Esmarts Program; Hands-on Energy)

Seymour Public Schools Curriculum

ELEMENTARY SCIENCE CMT INQUIRY PRACTICES AND SCIENCE KNOWLEDGE ASSESSED*

THE STANDARDS FOR SCIENTIFIC INQUIRY, LITERACY AND NUMERACY ARE INTEGRAL PARTS OF THE CONTENT STANDARDS FOR EACH GRADE LEVEL IN THIS CLUSTER.

Grades 3-5 Core Scientific Inquiry, Literacy and Numeracy <i>How is scientific knowledge created and communicated?</i>	
Content Standards	Expected Performances
<p>SCIENTIFIC INQUIRY</p> <p>◆ Scientific inquiry is a thoughtful and coordinated attempt to search out, describe, explain and predict natural phenomena.</p> <p>SCIENTIFIC LITERACY</p> <p>◆ Scientific literacy includes speaking, listening, presenting, interpreting, reading and writing about science.</p> <p>SCIENTIFIC NUMERACY</p> <p>◆ Mathematics provides useful tools for the description, analysis and presentation of scientific data and ideas.</p>	<p>Make observations and ask questions about objects, organisms and the environment. Seek relevant information in books, magazines and electronic media.</p> <p>Design and conduct simple investigations. Employ simple equipment and measuring tools to gather data and extend the senses. Use data to construct reasonable explanations.</p> <p>Analyze, critique and communicate investigations using words, graphs and drawings. Read and write a variety of science-related fiction and nonfiction texts. Search the Web and locate relevant science information.</p> <p>Use measurement tools and standard units (e.g., centimeters, meters, grams, kilograms) to describe objects and materials. Use mathematics to analyze, interpret and present data.</p>

Seymour Public Schools Curriculum

Grade 3 Core Themes, Content Standards and Expected Performances	
Content Standards	Expected Performances
<p><i>Properties of Matter – How does the structure of matter affect the properties and uses of materials?</i></p> <p>3.1 - Materials have properties that can be identified and described through the use of simple tests.</p> <p>◆ Heating and cooling cause changes in some of the properties of materials.</p>	<p>Sort and classify materials based on properties such as dissolving in water, sinking and floating, conducting heat, and attracting to magnets.</p> <p>Describe the effect of heating on the melting, evaporation, condensation and freezing of water.</p>
<p><i>Heredity and Evolution – What processes are responsible for life's unity and diversity?</i></p> <p>3.2 - Organisms can survive and reproduce only in environments that meet their basic needs.</p> <p>◆ Plants and animals have structures and behaviors that help them survive in different environments.</p>	<p>Describe how different plants and animals are adapted to obtain air, water, food and protection in specific land habitats.</p> <p>Describe how different plants and animals are adapted to obtain air, water, food and protection in water habitats.</p>
<p><i>The Changing Earth – How do materials cycle through the Earth's systems?</i></p> <p>3.3 - Earth materials have different physical and chemical properties.</p> <p>◆ Rocks and minerals have properties that may be identified through observation and testing; these properties determine how earth materials are used.</p>	<p>Describe the physical properties of rocks and relate them to their potential uses.</p> <p>Relate the properties of rocks to the possible environmental conditions during their formation.</p>

Seymour Public Schools Curriculum

<p><i>Science and Technology in Society – How do science and technology affect the quality of our lives?</i></p> <p>3.4 - Earth materials provide resources for all living things, but these resources are limited and should be conserved.</p> <p>◆ Decisions made by individuals can impact the global supply of many resources.</p>	<p>Describe how earth materials can be conserved by reducing the quantities used, and by reusing and recycling materials rather than discarding them.</p>
---	---

Seymour Public Schools Curriculum

Grade: three	Subject: Science
CSDE Standard	Properties of Matter
Enduring Understanding	Heating and cooling cause changes in some of the properties of materials.
Essential Question	<i>How does the structure of matter affect the properties and uses of materials?</i>
Content Standard:	3.1 – Materials have properties that can be identified and described through the use of simple tests.
Performance Expectations (Student outcomes)	<p>GRADE-LEVEL EXPECTATIONS:</p> <ol style="list-style-type: none"> 1. Materials have properties that are directly observable; examples include its state of matter, or its size, shape, color or texture. Other properties can only be observed by doing something to the material (simple tests). Materials can be sorted and classified based on their testable properties. 2. Some materials dissolve (disappear) when mixed in water; others accumulate on the top or the bottom of the container. The temperature of water can affect whether, and at what rate, materials dissolve in it. 3. Some materials, such as sponges, papers and fabrics, absorb water better than others. 4. Some materials float when placed in water (or other liquids such as cooking oil or maple syrup); others sink to the bottom of the container. 5. Some materials conduct heat better than others. Materials that are poor heat conductors are useful for keeping things cold or hot. 6. Some materials are attracted to magnets. Magnetic materials contain iron. 7. The physical properties of a material can be changed, but the material remains the same. For example, a block of wood can

Seymour Public Schools Curriculum

	<p>be cut, sanded or painted, but it is still wood.</p> <p>8. Heating and cooling cause materials to change from one state of matter to another and back again. Adding heat can cause solids to melt into liquids (for example, chocolate, ice cream, butter or wax); removing heat (cooling) can cause liquids to harden into solids (for example, hot candle wax hardens as it cools).</p> <p>9. Adding heat can cause water to boil and evaporate into a gas in the air (for example, steam rises from heated water); removing heat (cooling) can cause water vapor to condense into liquid water (for example, warm steam hitting a cold mirror). Water outdoors or in an open container evaporates without boiling (for example, puddles, ponds, fish tanks, etc.)</p> <p>10. Water may exist as a solid, liquid or gas, depending on its temperature. If water is turned into ice and then the ice is allowed to melt, the amount of water is the same as it was before freezing.</p> <p>11. Liquid water becomes solid water (ice) when its temperature cools to 0 degrees Celsius (32 degrees Fahrenheit). Warming ice to a temperature above 0 degrees Celsius causes it to melt into liquid water.</p>	
Strategies/Modes (examples)	Materials/Resources (examples)	Assessments (examples)
<p>3.1.1; 3.1.3 Curriculum Embedded Task-Soggy Paper (This task is required to be performed in preparation for the CMT Science Test) (8 days at 45 minute blocks)</p>	<p>KEY SCIENCE VOCABULARY: physical property, state of matter, solid, liquid, gas, dissolve, absorb, conduct, attract, melt, freeze, boil, evaporate, condense</p> <p>“Soggy Paper” Embedded Task Information- Connecticut State Department of Education website- http://www.sde.ct.gov/sde/lib/sde/word_docs/curriculum/science/cmtgr3tas_kteacher.doc</p>	<p>CMT Expected Performances</p> <p>B 1. Sort and classify materials based on properties such as dissolving in water, sinking and floating, conducting heat, and attracting to magnets.</p> <p>B 2. Describe the effect of heating on the melting, evaporation, condensation and freezing of water.</p> <p>Observation of paper types and completion of chart</p> <p>Experiment #1 – Data collection</p> <p>Experiment #1 – Data analysis (graphing) and discussion</p> <p>Experiment #2 - Planning</p>

Seymour Public Schools Curriculum

<p>UNDERLYING SCIENCE CONCEPTS (KEY IDEAS):</p> <ul style="list-style-type: none"> • Observing means using the senses to get information. • All substances have properties that can be observed and used to identify them. • Some properties of matter are called “physical” properties. Physical properties can be observed using the five senses. • Examples of physical properties are shape, color, texture, absorbency, transparency, and stretchability. • Some physical properties can be observed directly (e.g., color or shape), while others are revealed through interactions with other materials (e.g., absorbency or magnetic attraction). <p>Differentiation:</p> <p>Performance tasks should be <i>differentiated</i> to accommodate students’ learning needs and prior experiences. The main goal is to give <u>all</u> students opportunities to become curious, pose questions, collect and analyze data, and communicate conclusions. For different learners, these same actions will</p>	<p>For each group:</p> <ul style="list-style-type: none"> 12 squares of paper towels 12 squares of tissues 12 squares of napkins 3 zip-loc plastic bags (sandwich size) 3 plastic cups (8 oz) 1 plastic bottle of water (capped) 3 plastic plates (6”- 8” size) 1 plastic forceps * 1 plastic graduated cylinder (25 mL) * A damp sponge to clean up accidental spills <p>For each student:</p> <ul style="list-style-type: none"> Magnifying lens* Metric ruler Crayons/colored pencils for bar graph Scissors (optional-see Advanced Preparation) <p><u>For Experiment #2:</u></p> <ul style="list-style-type: none"> Several brands of paper 	<p>Experiment #2 – Data collection</p> <p>Experiment #2 – Data analysis and discussion</p> <p>Communicate Your Learning – letter writing (Persuasive Writing)</p>
---	---	--

Seymour Public Schools Curriculum

require different levels of “scaffolding” as they move toward greater levels of independence. For example, if students have had experiences creating their own data tables, the teacher may decide to delete part or all of the data table included in the performance task. Other possible adjustments include (but are not limited to):

- Text readability;
- Allowing students to control all or some of the variables;
- Whether the experimental procedure is provided or student-created;
- Graph labels and scales provided or student-created;
- Expectations for communication of results; or
- Opportunities for student-initiated follow-up investigations.

3.1.3

Foss Science

Investigation 1: Water Observations

Students investigate properties of water. They compare the way water interacts with four different surfaces, observe the property of surface tension, and investigate how to

Seymour Public Schools Curriculum

<p>change this property. They compare the rates of different amounts of water flowing downhill.</p> <ul style="list-style-type: none"> ❖ Water beads up some materials and is absorbed by other materials. <p>Part 1: Looking at Water What happens when water gets spilled, splashed, or dropped on something? Does water do the same thing on all surfaces? (30-40 minutes) Students conduct investigations to observe the properties of water, an important earth material. They compare how water interacts with four materials: paper towel, waxed paper, aluminum foil, and writing paper.</p> <ul style="list-style-type: none"> ❖ Water has several observable properties, including transparency, shapelessness, and movement or flow. ❖ Water beads up on some materials and is absorbed by other materials. <p>Part 2: Surface Tension What shape does water make on a flat surface? Why does water form a dome on flat surfaces? How can you change the surface</p>	<p>TEACHER RESOURCES</p> <p>3.1 Properties of Matter:</p> <p>Websites –</p> <p>Nonfiction Trade Books:</p> <ul style="list-style-type: none"> • <u>A Closer Look</u>, Lewis, Natalie. Newbridge Publishers (big book) • <u>Bendy and Rigid</u>, Royston, Angela. Heinemann Library, Chicago, IL. 2005 • <u>Properties of Matter</u>. Pearson Scott Foresman Leveled Readers. <p>FOSS Science Water</p> <p>FOSS Science Water</p> <p>paper towel, waxed paper, aluminum foil, and writing paper</p>	<p>Teacher Observation Informal Notes Assessment Chart for Investigation 1</p>
--	---	---

Seymour Public Schools Curriculum

<p>tension of plain water? (40-50 minutes) Students discover how many drops of water they can place on a penny before the water spills off. They are introduced to surface tension as a property of water. They try to change water's surface tension by separately adding soap and salt to a dome of water on a penny.</p> <ul style="list-style-type: none"> ❖ Surface tension is the skin-like surface of water that pulls it together into the smallest possible volume. ❖ Drops of water form domes on pennies because of surface tension. ❖ Surface tension can be disrupted by the addition of some other substances. <p>Note: Part 3: Taught in grade four. (4.3.2)</p> <p>3.1.4; 3.1.9; 3.1.10; 3.1.11 Foss Science Investigation 2: Hot Water, Cold Water at a Glance Students observe the properties of water as it is heated, cooled and frozen. They make a water thermometer and find that water expands as it is heated. Students compare the density of water at different temperatures and find that warm water is less dense than cool water, and ice is less dense than liquid water.</p>	<p>FOSS Science Water</p> <p>Salt, soap, penny</p> <p>FOSS Science Water</p>	<p>Teacher Observation Check for understanding of surface tension and reporting results honestly. Assessment Chart for Investigation 1</p>
---	--	--

Seymour Public Schools Curriculum

<ul style="list-style-type: none"> ❖ Water expands when heat is added. ❖ Water contracts when heat is taken away. ❖ Cold water is denser than warm water. ❖ Water is densest at 4° Celsius. ❖ Ice is less dense than liquid water. ❖ A solid has a definite volume and shape; a liquid has only definite volume. <p>Part 1: Build a Thermometer What happens to water when it is heated? What happens to water when it is cooled? (30-45 minutes) Students build a bottle thermometer and conduct investigations to find out what happens when the thermometer is placed first in hot water and then in cold water.</p> <ul style="list-style-type: none"> ❖ Water expands when heat is added. ❖ Water contracts when heat is taken away. <p>Part 2: Sinking and Floating Water Is hot water denser or less dense than room-temperature water? Is cold water denser or less dense than room-temperature water? (30-40 minutes) Students observe objects placed in</p>	<p>FOSS Science Water</p>	<p>Teacher Observation Check students' understanding that changes in temperature affect the amount of space water occupies. Assessment Chart for Investigation 2</p>
---	---	---

Seymour Public Schools Curriculum

<p>❖ Water is densest at 4° Celsius.</p> <p>❖ Ice is less dense than liquid water.</p> <p>❖ A solid has definite volume and shape; a liquid has only definite volume.</p> <p>3.1.4 Discuss with students objects that they have seen sink or float in water. Have students think about a swimming pool or ocean and ask them to describe what they see. Students can describe what items they see that float and ones that sink. (B INQ. 1)</p> <p>Give students a variety of objects and liquids that can be sorted into floating and sinking. Have students predict which objects would sink and which would float. After students have tested their predictions, create a list of characteristics that floating objects have in common and that sinking objects have in common.</p> <p>3.1.8 K-W-L Solids, liquids, and gases and how solids/liquids/ gases can change and how solids can change into liquids and liquids into gases. Ask students to think of times/places where they may have observed these changes. (B INQ. 1)</p>	<p>Variety of materials that can float/sink, including liquids such as oil and maple syrup.</p> <p>Variety of materials that can dissolve/not dissolve in water</p> <p>3.1.4 <u>The Magic School Bus Ups and Downs: A Book About Floating and Sinking</u></p> <p>3.1.8;3.1.10 <u>Emmett's Snowball</u> by Ned Miller</p>	<p>Have students create a picture of a pool/beach/lake including in their picture different items that would be found there (ones that both sink and float). Have students choose one item that they have drawn floating and one that they have drawn sinking. Ask the students to tell why the object can float and why the other object would sink. (B INQ. 6)</p> <p>Give students a variety of objects (sinking/floating, dissolving) that have been sorted into groups. Have the students identify what the rule of the sort is and how they know. Then have students sort the objects in a new way. (B INQ. 1, 5, 6)</p>
--	--	--

Seymour Public Schools Curriculum

<p>3.1.8; 3.1.10; 3.1.11 Give students a time of year/place (such as a freezer or stove). Have them tell the temperature that would be related to this time or place and then tell what would happen to water that is in this place. (B INQ. 5, 6, 7)</p>	<p>3.1.8 Changing State.... http://www.bbc.co.uk/schools/ks2bitesize/science/activities/changing_state.shtml</p> <p>3.1.8 Additional Resources needed (Heating and Cooling; States of Matter)</p>	<p>Student response.</p>
---	--	--------------------------

Seymour Public Schools Curriculum

Grade: three	Subject: Science
CSDE Standard	Heredity and Evolution
Enduring Understanding	Plants and animals have structures and behaviors that help them survive in different environments.
Essential Question	<i>What processes are responsible for life's unity and diversity?</i>
Content Standard:	3.2 – Organisms can survive and reproduce only in environments that meet their basic needs.
Performance Expectations (Student outcomes)	<p>GRADE-LEVEL EXPECTATIONS:</p> <ol style="list-style-type: none"> 1. Plants and animals have physical and behavioral adaptations that allow them to survive in certain environments. Adaptations are passed from parents to offspring. Individuals that happen to be bigger, stronger or faster can have an advantage over others of the same kind for finding food and mates. 2. Animals have behavioral and structural adaptations for getting food. Structural adaptations include things such as specialized teeth for tearing meat or grinding grasses; specialized beaks for cracking seeds, snatching insects, tearing meat or spearing fish; sharp claws for grasping; keen sense of smell, or long, sticky tongues for reaching food. Behavioral adaptations include actions such as following herds of prey animals, spinning webs or stalking. 3. Animals have behavioral and structural adaptations for protection from predators. Some animals have camouflage that allows them to stay concealed by blending in with their surroundings; some animals look like other animals to avoid being eaten. Structural adaptations include things such as sharp quills, hard shells or antlers. Behavioral adaptations include actions such as staying absolutely still, producing a bad odor, appearing or sounding scary, or fleeing. 4. Animals have behavioral and structural adaptations for surviving harsh environmental conditions. Animals that live in cold climates have insulating body coverings such as blubber, down or thick undercoats that keep them

Seymour Public Schools Curriculum

	<p>warm. Animals that live in hot climates keep cool by releasing heat from big ears or by panting, or by living underground. Some animals survive seasonal changes by slowing down body functions (hibernating in dens, tunnels or mud) or moving to more favorable conditions (migrating).</p> <p>5. Plants have adaptations for getting the sunlight they need to survive. Examples include growing or facing toward sunlight and sending out chutes or tendrils to get taller than neighboring plants.</p> <p>6. Plants have adaptations for protection from predators. Examples include spines, thorns and toxins (for example, poison ivy).</p> <p>7. Plants have adaptations for surviving in different environmental conditions. Examples include dropping leaves in winter when sunlight and water are limited, having needle-shaped leaves that shed snow, or surviving drought by storing water in thick stems.</p>	
Strategies/Modes (examples)	Materials/Resources (examples)	Assessments (examples)
<p>3.2.1 through 3.2.4 Students discuss their pets and what they as owners provide (food, water, protection) and how wild animals must find their own and adapt to their surroundings, including giraffes' long necks, cheetahs' speed, turtles' shells etc.</p>	<p>KEY SCIENCE VOCABULARY: adaptation, camouflage, hibernation, migration</p> <p>3.2 Plant/Tree Adaptations: Nonfiction Trade Books:</p> <ul style="list-style-type: none"> • <u>Green and Growing</u>. Hammonds, Heather. Rigby/Harcourt Achieve, Austin, TX. 2004. • <u>Plants and Trees Growing</u>. Race-Moore, Kara. Pearson Scott Foresman Leveled Readers. • <u>Tree Life</u>. Black, Kara. Pearson Scott Foresman Leveled Readers. • <u>Forest Plants</u>. Giesecke, Ernestine. Heinemann Library, Chicago, IL. 2005. • <u>New Plants</u>. FOSS Science Stories. Delta Education, 2003. 	<p>CMT Expected Performances</p> <p>B 3. Describe how different plants and animals are adapted to obtain air, water, food and protection in specific land habitats.</p> <p>B 4. Describe how different plants and animals are adapted to obtain air, water, food and protection in water habitats.</p>

Seymour Public Schools Curriculum

<p>3.2.1; 3.2.5; 3.2.6 Students brainstorm different types of plants and trees and discuss differentiating traits of each (fir trees do not lose their needles, cacti do not need much water, poison ivy, some flowers are perennials) and why plants may have these traits.</p> <p>3.2.2; 3.2.3 Animals that hunt can run quickly or hide, animals that graze are usually larger and slower, animals protect themselves with odor, pines, or camouflage, etc.</p> <p>3.2.4 Students will list requirements necessary for survival of an animal (air, water, food, protection) and list how different animal species, including humans, achieve these. Animals are then categorized by how animals achieve these requirements.</p>	<p>Discovery-Animals: Critter Cams http://animal.discovery.com/cams/cams.html</p> <p>3.2.2;3.2.3 Additional Resources needed (see Bird Beak Kit TDCT from Sciencekit.com 43.99)</p> <p>3.2.4 Additional Resources needed (See STC Animal Studies)</p>	<p>Students will walk outside and list as many animals and plants they can identify and why they may be growing in this area. Then students will list plants and animals that could not live in the area and explain why.</p> <p>Students will choose an animal or plant and write a description about their environment and daily life. The description should include how the plant or animal acquires food, water, air, and protects itself. (B INQ. 7)</p>
---	--	--

Seymour Public Schools Curriculum

Grade: three	Subject: Science
CSDE Standard	<i>The Changing Earth</i>
Enduring Understanding	Rocks and minerals have properties that may be identified through observation and testing; these properties determine how earth materials are used.
Essential Question	<i>How do materials cycle through the Earth's systems?</i>
Content Standard:	3.3 – Earth materials have different physical and chemical properties.
Performance Expectations (Student outcomes)	<p>GRADE-LEVEL EXPECTATIONS:</p> <ol style="list-style-type: none"> 1. Earth is mainly made of rock. Rocks on the earth’s surface are constantly being broken down into smaller and smaller pieces, from mountains to boulders, stones, pebbles and small particles that make up soil. 2. Rocks can be sorted based on properties, such as shape, size, color, weight or texture. 3. Properties of rocks can be used to identify the conditions under which they were formed. 4. Igneous rocks are formed when melted rock cools, hardens and forms crystals. Melted rock that cools slowly inside a volcano forms large crystals as it cools. Melted rock that cools rapidly on the earth’s surface forms small crystals (or none at all). 5. Sedimentary rocks are formed underwater when small particles of sand, mud, silt or ancient shells/skeletons settle to the bottom in layers that are buried and cemented together over a long period of time. They often have visible layers or fossils. 6. Metamorphic rocks are formed when igneous or sedimentary rocks are reheated and cooled or pressed into new forms. They often have bands, streaks or clumps of materials.

Seymour Public Schools Curriculum

	<p>7. Rock properties make them useful for different purposes. Rocks that can be cut into regular shapes are useful for buildings and statues; rocks that crumble easily are useful for making mixtures such as concrete and sheetrock.</p> <p>8. All rocks are made of materials called minerals that have properties that may be identified by testing. Mineral properties include color, odor, streak, luster, hardness and magnetism.</p> <p>9. Minerals are used in many ways, depending on their properties. For example, gold is a mineral that is easily shaped to make jewelry; talc is a mineral that breaks into tiny grains useful for making powders.</p>	
<p>Strategies/Modes (examples)</p> <p>Create a KWL chart. Students share prior knowledge of rocks. Students explore different rocks to observe similarities, differences and characteristics of various rocks. (B INQ. 1)</p>	<p>Materials/Resources (examples)</p> <p>KEY SCIENCE VOCABULARY: property, classify, texture, igneous, sedimentary, metamorphic, fossil, crystal, mineral</p> <p>3.3.1 through 3.3.9 Additional Resources needed (see STC Kit Rocks and Minerals)</p> <p>(B INQ. 6) <u>The Magic School Bus: Inside the Earth Book</u> <u>Rocky Road Trip (The Magic School Bus Chapter Book #20): Rocks and Minerals</u> Rock Hounds <u>http://www.fi.edu/fellows/payton/rocks</u></p>	<p>Assessments (examples)</p> <p>CMT Expected Performances</p> <p>B 5. Describe the physical properties of rocks and relate them to their potential uses.</p> <p>B 6. Relate the properties of rocks to the possible environmental conditions during their formation.</p>

Seymour Public Schools Curriculum

Grade: three	Subject: Science
CSDE Standard	<i>Science and Technology</i>
Enduring Understanding	Decisions made by individuals can impact the global supply of many resources.
Essential Question	<i>How do science and technology affect the quality of our lives?</i>
Content Standard:	3.4 – Earth materials provide resources for all living things, but these resources are limited and should be conserved.
Performance Expectations (Student outcomes)	<p>GRADE-LEVEL EXPECTATIONS:</p> <ol style="list-style-type: none"> 1. Earth materials that occur in nature include rocks, minerals, soils, water and the gases of the atmosphere. Earth materials are natural resources that provide us with things we need to live, including food, clothing, water, air, shelter, land and energy. 2. Some natural resources are useful to people in their raw form (for example, fresh water, soil or air); other natural resources must be modified to meet human needs (for example, petroleum must be extracted from rocks and refined into gasoline, heating oil or plastics; wood from trees must be processed to make paper). 3. The supply of many natural resources such as fossil fuels, metals, fresh water and fertile soil is limited; once they are used up or contaminated they are difficult or impossible to replace. 4. Human actions can affect the survival of plants and animals. The products of the fuels people burn affect the quality of the air. Waste and chemicals from factories, farms, lawns and streets affect the quality of the water and soil. 5. Humans can extend the use of some natural resources by <u>reducing</u> the amounts they use (for example, driving less to reduce the amount of gasoline used; turning off faucets when not in use). 6. Humans can extend the use of some natural resources by <u>recycling</u>, or collecting used materials and processing them into new materials (for example, collecting waste paper or plastic bottles and making them into new products).

Seymour Public Schools Curriculum

	<p>7. Humans can extend the use of some natural resources by <u>reusing</u> products instead of buying new ones (for example, washing containers that food is packaged in and using them again to store different foods or objects).</p> <p>8. Humans can extend the use of some natural resources by <u>replacing</u> what they use (for example, planting new trees to replace those that are cut for lumber or paper; purifying dirty water from storm drains and discharging clean water back into a river).</p>	
Strategies/Modes (examples)	Materials/Resources (examples)	Assessments (examples)
<p>3.4.3 through 3.4.8</p> <p>Teacher introduces reduce, reuse, recycle. Discuss examples for each term. Teacher asks students what they already know about recycling. What do they know about recycling in their community? How do they help to reduce, reuse, and recycle?</p>	<p>KEY SCIENCE VOCABULARY: natural resources, recycle</p>	<p>CMT Expected Performances</p> <p>B 7. Describe how earth materials can be conserved by reducing the quantities used, and by reusing and recycling materials rather than discarding them.</p> <p>Students make posters to remind others of the importance of recycling (to be displayed in the school).</p>

Seymour Public Schools Curriculum

<p>Eesmarts program-Hands-on Energy. Use lessons and activities in this program.</p>	<p>For further information on the Eesmart programs: www.eesmarts.com</p> <p>Fieldtrip: SmartLiving Center Home Energy Innovation (Free Admission) 297 Boston Post Road (Rt. 1) Orange, CT 06477-3537 203-799-0460 PIMMS Web site: www.wesleyan.edu/pimms for more information.</p> <p>3.4 Natural Resources & Conservation</p> <p>Websites –</p> <ul style="list-style-type: none">• http://www.tappi.org/ - “Paper University”• http://www.straightdope.com/mailbag/mpapermaking.html - Science Advisory Board• http://www.eia.doe.gov/kids/energyfacts/saving/recycling/solidwastegdclass.html <p>Other activities -</p> <p>Nonfiction Trade Books:</p> <ul style="list-style-type: none">• <u>How We Use Paper</u>. Oxlade, Chris. Raintree, Chicago, IL. 2005.• <u>Paper.</u>, Oxlade, Chris. Heinemann Library, Chicago, IL. 2005.• <u>You Can Recycle</u>. Walsh, Patricia. Pearson Scott Foresman Leveled Readers.	
---	--	--

Seymour Public Schools Curriculum

Appendix

Science CMT Handbook [..\Science\science_cmt_handbook.pdf](#)

Format of the Elementary Science CMT Administered at Grade 5

SCIENTIFIC LITERACY TERMINOLOGY: ELEMENTARY

Seymour Public Schools Curriculum

Format of the Elementary Science CMT Administered at Grade 5

Item Distribution

Content Knowledge			Scientific Inquiry, Literacy and Numeracy	
Selected Response*	Constructed Response*	Selected Response*	Total Points	
Life Science	6	1	6	14
Physical Science	6	1	6	14
Earth Science	6	1	6	14
Total Points	24		18	42

The Elementary Science CMT is a cumulative test administered at Grade 5. It includes science knowledge and inquiry skills described in the Core Science Curriculum Framework for Grades 3, 4 and 5. There are 39 test questions: 36 selected response items and three constructed response items. Of the 36 selected response items, 18 assess Content Knowledge and 18 assess processes of Scientific Inquiry, Literacy and Numeracy. The three constructed response items assess Content Knowledge.

Test Scoring

The selected response items are scored electronically as correct or incorrect. Constructed response items are hand-scored by trained readers using a three-point scale (0-2).

Curriculum-Embedded Performance Tasks

CSDE has developed curriculum-embedded performance tasks related to content standards in Grades 3, 4 and 5. These instructional materials are posted at www.ct.gov/sde at the science link from Curriculum and Instruction. Teachers are encouraged to incorporate these inquiry investigations into a learning unit that addresses the content standard related to each task. The Elementary Science CMT will include two to three multiple-choice items that assess expected performances in Scientific Inquiry, Literacy and Numeracy within the context of each embedded performance task.

Reporting

A total science score will be reported based on all 42 points. In addition, the following subscores will be reported:

Life Science 14 points (33⅓ %)

Seymour Public Schools Curriculum

Physical Science 14 points (33 $\frac{1}{3}$ %)

Earth Science 14 points (33 $\frac{1}{3}$ %)

Content Knowledge 24 points (57%)

Scientific Inquiry, Literacy and Numeracy 18 points (43%)

Testing Time - 65 minutes

Seymour Public Schools Curriculum

SCIENTIFIC LITERACY TERMINOLOGY: ELEMENTARY

This list, while not exhaustive, includes vocabulary that should be used by teachers and students during classroom discourse.

absorb	conduct (an experiment)	fair test	magnet, magnetic	periscope	shadow
adaptation (adapt)	conduct (electricity)	findings	magnifier	photosynthesis	silt
aluminum	conserve	flexible	magnifying glass	pitch (sound)	sink (float)
amphibian	cork	float	mammal	planet	soil
analyze	critique	force	mass	pluck (a string)	solid
atmosphere	crystal	freeze	materials	position	sort
attract	cycle	gas	melt	precipitation	speed
average	data	germinate	metal	predict, prediction	state of matter
balance	decrease	gills	metamorphosis	pressure	stopwatch
battery	describe	graduated cylinder	meter, meter stick	procedure	strum (a string)
beaker	determine	gram	migrate	process	surface
binoculars	diagram	gravity	migration	property	survive
boulder	dissolve	guitar string	milliliters	range	telescope
breathe	draw a conclusion	habitat	mineral	record (data)	temperature
butterfly	droplets	hand lens	mirror	recycle	tension
cactus	drought	hibernate, hibernation	mixture	reflect	testable
camouflage	ecosystem	humid, humidity	motion	repel	texture
Celsius	environment	hypothesis	natural resources	reproduce	thermometer
centimeter	erode, erosion	identify	nutrients	reptile	thorns
characteristic	evaluate	increase	object	result	transparent
circuit	evaporate	insect	observe, observation	reuse	vibrate, vibration
classify	evaporation	insulate, insulator	offspring	revolve, revolution	water cycle
clay	evidence	investigate	opinion	rotate, rotation	weigh, weight
climate	experiment	kilogram	orbit	sand	
collect data	explain your reasoning	layer	organism	scale	
compare	explain, explanation	length	oxygen	scientific	
conclusion	explore	lens	particles	observation	
conclusion based on data	extinct	life cycle	pattern	season	
condense	Fahrenheit	liquid	pebble	seed dispersal	
condensation		liter	perform an experiment	separate	
		lungs		sequence	