

Ross School Curriculum Map 2007/2008
4th Grade Science

Month	Content	Skills/Benchmarks
<p>September/ October</p>	<p>Scientific Method</p> <p>Essential Question: How do scientists ask meaningful questions and conduct careful investigations?</p> <p>Key Vocabulary: experiment, testable hypothesis, control, variable, observation, classification, experiment, measurement, data, inference, conclusion</p>	<p>I&E6a Differentiate observation from inference (interpretation) and know scientists' explanations come partly from what they observe and partly from how they interpret their observations.</p> <p>I&E6b Measure and estimate the weight, length, or volume of objects.</p> <p>I&E6c Formulate and justify predictions based on cause-and-effect relationships.</p> <p>I&E6d Conduct multiple trials to test a prediction and draw conclusions about the relationships between predictions and results.</p> <p>I&E6e Construct and interpret graphs from measurements.</p> <p>I&E6f Follow a set of written instructions for a scientific investigation.</p> <p>Investigation and Experimentation (throughout all modules) What students should be able to do</p> <ul style="list-style-type: none"> • Ask scientific questions • Make a hypothesis • Plan and execute an investigation • Collect and record data • Organize data in graphs and tables • Explain results • Think of new questions • Share results with other investigators
<p>November/ December</p>	<p>Electricity & Magnetism Physical Sciences (PS) Investigation and Experimentation (I&E)</p> <p>Essential Question: How are electricity and magnetism related and what are useful applications for everyday life?</p> <p>Student Readers: <i>Science Resources textbook, Foss Website</i></p> <p>Key Vocabulary: attract, compass, detector, force, graph, induced magnetism, intersection, iron, lodestone, magnet, magnetic field, magnetism, magnetite, north pole, permanent magnet, pole</p>	<p>PS1f Students know that magnets have two poles (north and south) and that like poles repel each other while unlike poles attract each other.</p> <p>I & E6c Formulate and justify predictions based on cause and effect relationships.</p> <p>I & E6d Conduct multiple trials to test a prediction and draw conclusions about the relationships between predictions and results.</p> <p>I&E6e Construct and interpret graphs from measurements.</p> <p>I&E6f Follow a set of written instructions for a scientific investigation</p> <p>PS1b Students know how to build a simple compass and use it to detect magnetic effects, including Earth's magnetic field.</p>

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	<p>predict, prediction, repel, south pole, temporary magnet</p>	<p>What students should be able to do:</p> <ul style="list-style-type: none"> • Investigate magnetic properties • Detect the force of magnetism • Build a circuit • Know the properties of a circuit • Test for and identify materials that are conductors or insulators • Build and test for open, closed, parallel, and series circuits • Learn how to add a switch to a circuit • Create an electromagnet
<p>January - February & May - June</p>	<p>Environmental Science</p> <ul style="list-style-type: none"> • Amigos Alados • The Pollution Play • Pollution & Recycling • STRAW <p>Life Sciences (LS)</p> <p>Essential Questions: What do all organisms need in order to live and grow?</p> <p>How do living organisms depend upon one another and their environment for their survival?</p> <p>Key Vocabulary: component, environment, environmental factor, living, nonliving, organism, recycle, endangered, rare, extinct, threatened, habitat, food chain, ecosystem, competition, natural resources, species, survival, pollution, poaching, conservation, riparian, watershed, restoration, native species, alien species, global warming, greenhouse gas, ornithology, migration, passerine, raptor, appearance, range, conservation, clutch</p>	<p><i>California EPA's, EEI (Education and the Environment Initiative), Alignment of the Academic Content Standards to Environmental Principles and Concepts</i></p> <p><u>Life Science Standard 2.0</u> All organisms need energy and matter to live and grow. As a basis for understanding this concept:</p> <p><u>(Previously 2.0 a in adopted state standards)</u></p> <ul style="list-style-type: none"> • The health of natural systems affects the quality, quantity, and reliability of food chains. • Food chains and webs are among the natural cycles and processes essential to the function of natural systems. • In some cases, plants also play a role in the detoxification of waste and the cycling of nutrients —ecosystem services upon which humans depend. <p><u>(Previously 2.0 b in adopted state standards)</u></p> <ul style="list-style-type: none"> • The health of natural systems affects the quality, quantity, and reliability of producers and consumers and the food chains and webs that connect them. • The byproducts produced by human activities can enter food chains and affect natural systems.

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		<p><u>(Previously 2.0 c in adopted state standards)</u></p> <ul style="list-style-type: none"> • Decaying plants and animals contain matter (nutrients) that can be counted among the goods produced by natural systems upon which humans and other animals rely for food. Decomposers provide ecosystem services by returning nutrients to the soil for further uptake by plants and enhancement of soil quality. • Decomposers play an essential role in the cycles and processes that comprise the food chains and webs required for natural systems to function. <p>What students should be able to do</p> <ul style="list-style-type: none"> • Research for information • Develop a social conscience • Find relevant current events, analyze for key concepts, and report orally and visually to classmates • Write a research report to communicate information about a California endangered song birds • Be able to draw a typical food chains • Analyze factors impacting plant communities and animal populations • Work on a riparian restoration project • Manage and execute school paper recycling project • Find and identify creek macroinvertebrates • Utilize bird field guide to identify local songbirds
March- April	<p>The Solid Earth Earth Sciences (ES)</p> <p>Essential Question: How do their properties of rocks and minerals reflect the processes that formed them?</p> <p>How do wind, water, and ice shape and reshape Earth's land surface?</p>	<p>ES4a Students know how to differentiate among igneous, sedimentary, and metamorphic rocks by referring to their properties and methods of formation (the rock cycle)</p> <p>ES4b Students know how to identify common rock-forming minerals (including quartz, calcite, feldspar, and mica) and ore minerals by using a table of diagnostic</p>

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	<p>Key Vocabulary: balance, circumference, crystal, depth, diameter, dissolve, evaporate, geology, mass, meter tape, mineral, mock rock, outcrop, property, rock, rock-forming mineral, geology, crust, mantle, core, igneous, sedimentary, metamorphic rocks, rock cycle, erosion, landslides, volcanic eruptions, earthquakes, plate tectonics, geohydrology</p>	<p>properties.</p> <p>ES5a Students know some changes in the earth are due to slow processes, such as erosion, and some changes are due to rapid processes, such as landslides, volcanic eruptions, and earthquakes.</p> <p>ES5b Students know that natural processes, including freezing and thawing and the growth of roots, cause rocks to break down into smaller pieces.</p> <p>ES5c Students know moving water erodes landforms, reshaping the land by taking it away from some places and depositing it as pebbles, sand, silt, and mud, in other places (weathering, transport, and deposition).</p> <p>What students should be able to do</p> <ul style="list-style-type: none"> • Differentiate rocks by properties and methods of formation • Identify rock-forming minerals • Be able to explain reasons for changes in the earth's surface • Be able to explain how water reshapes the land • Be able to explain reasons for mountain formation • Identify earth's plates • Explain continental drift and relate to modern maps
May-June	<p>Environmental Science</p> <ul style="list-style-type: none"> • Creek Critters • Cabbages and Chemistry • River Cutters <p>Life Sciences (LS)</p> <p>Essential Questions: What do all organisms need in order to live and grow? How do living organisms depend upon one another and their environment for their survival?</p> <p>Key Vocabulary: component, environment, environmental factor, living,</p>	<p><i>California EPA's, EEI (Education and the Environment Initiative), Alignment of the Academic Content Standards to Environmental Principles and Concepts</i></p> <p><u>Life Science Standard 2.0</u> All organisms need energy and matter to live and grow. As a basis for understanding this concept:</p> <p><u>(Previously 2.0 a in adopted state standards)</u></p> <ul style="list-style-type: none"> • The health of natural systems affects the quality, quantity, and reliability of food chains. • Food chains and webs are among the

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