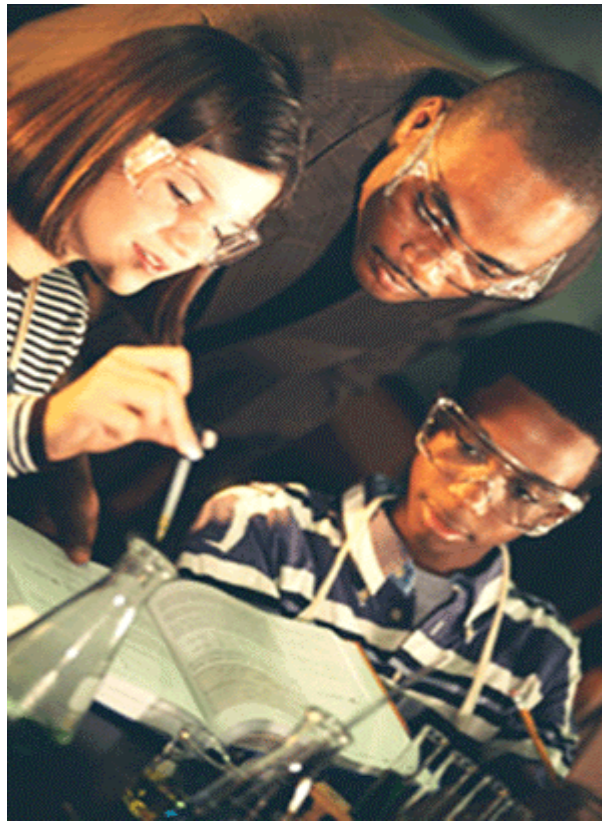


**Content Standards and Expected Performances for**

# **Elementary School Science**



**Feedback Edition**

## Pre K-2: Observing Our World

Content Standards	Expected Performances
<p style="text-align: center;"><b>Inquiry: How Do We Make Sense of Our World?</b></p> <p><b>preK-2.1</b> Answers to questions about the natural world can come from reliable sources of scientific information and from our own observations and investigations.</p>	<p><b>preK-2(a)</b> Make observations and ask questions about nature.</p> <p><b>preK-2(b)</b> Seek information in books, magazines and pictures.</p> <p><b>preK-2(c)</b> Make predictions based on observed patterns.</p> <p><b>preK-2(d)</b> Use senses and simple measuring tools to collect data.</p> <p><b>preK-2(e)</b> Describe natural phenomena by words and drawings.</p>
<p style="text-align: center;"><b>Properties of Solid Materials: How Can We Explore Them?</b></p> <p><b>preK-2.2</b> Properties of objects and materials can be observed using our senses and measured using simple tools.</p> <p><b>preK-2.3</b> We use materials that have suitable properties for the jobs that we want them to do.</p>	<p><b>preK-2(f)</b> Learn how to use simple measuring tools (e.g., balances, rulers and thermometers) to quantify properties of objects and materials (e.g., weight, length, temperature).</p> <p><b>preK-2(g)</b> Sort different <i>materials</i> by their properties (e.g., how strong, stiff, flexible and transparent are objects made out of wood, glass, plastic or metal) and relate the properties to the uses of objects made out of these materials.</p> <p><b>preK-2(h)</b> Observe, measure and classify the properties of different <i>objects</i> (e.g., the color, texture, size, shape and weight of common classroom objects).</p> <p><b>preK-2(i)</b> Sort different soils by their properties (e.g., particle size, color, composition) and relate the properties to soils' ability to retain water and support the growth of plants.</p>
<p style="text-align: center;"><b>Properties of Plants and Animals: How Are They Alike and Different?</b></p> <p><b>preK-2.4</b> Living things have certain characteristics that distinguish them from nonliving things.</p> <p><b>preK-2.5</b> Many different kinds of living things inhabit the earth.</p> <p><b>preK-2.6</b> Plants and animals have characteristic life cycles that include birth, maturation and death.</p> <p><b>preK-2.7</b> Organisms have basic needs and different body parts that help them to satisfy those needs (e.g., plants need water, light and nutrients; animals need air, water and food).</p>	<p><b>preK-2(j)</b> Observe and classify things as living or nonliving based on their physical and behavioral traits.</p> <p><b>preK-2(k)</b> Observe and classify plants and animals based on their external features.</p> <p><b>preK-2(l)</b> Observe and compare the defining characteristics of birds, fish, insects and mammals.</p> <p><b>preK-2(m)</b> Grow and observe different organisms (e.g., insects, amphibians, plants), record data and describe the appearance of these organisms in different stages of their life cycle.</p> <p><b>preK-2(n)</b> Perform simple experiments to explore and describe the effects of water and light on seed germination and plant growth.</p>
<p style="text-align: center;"><b>Weather and the Sky: What Is Going On Up There?</b></p> <p><b>preK-2.8</b> Weather conditions can be measured, described and predicted.</p> <p><b>preK-2.9</b> Most objects in the solar system are in regular and predictable motion.</p>	<p><b>preK-2(o)</b> Use instruments to measure daily weather conditions (e.g., thermometer, wind vane, rain gauge).</p> <p><b>preK-2(p)</b> Record the daily weather conditions, and describe the relationship between temperature and precipitation in different seasons.</p> <p><b>preK-2(q)</b> Observe and describe the apparent movement of the sun and moon across the sky.</p>
<p style="text-align: center;"><b>Staying Healthy: What Keeps Our Bodies Healthy?</b></p> <p><b>preK-2.10</b> To keep your body healthy you need a balanced diet, regular physical exercise and appropriate rest.</p>	<p><b>preK-2(r)</b> Describe the basic components of a balanced diet (e.g., dairy products, meat, grains, fruits, and vegetables).</p> <p><b>preK-2(s)</b> Relate the importance of physical activity, rest and sleep to maintaining good health.</p>

## Core Scientific Reasoning and Communication Skills for Elementary School Students\*

<b>Content Standards</b>	<b>Expected Performances</b>
<p><b>SRC 3-5.1</b> Scientific investigation is a thoughtful and coordinated attempt to search out, describe and explain the natural world</p>	<p><b>SRC 3-5.1(a)</b> Make observations and ask questions about objects, organisms and the environment.</p> <p><b>SRC 3-5.1(b)</b> Seek relevant information in books, magazines and electronic sources of information.</p> <p><b>SRC 3-5.1(c)</b> Design and conduct simple investigations.</p> <p><b>SRC 3-5.1(d)</b> Employ simple equipment and measuring tools to gather data and extend the senses.</p> <p><b>SRC 3-5.1(e)</b> Use data to construct reasonable explanations.</p> <p><b>SRC 3-5.1(f)</b> Analyze, critique and communicate investigations using words, graphs and drawings.</p>
<p><b>SRC 3-5.2</b> Science literacy includes speaking, listening, presenting, interpreting, reading and writing about science.</p>	<p><b>SRC 3-5.2(a)</b> Communicate ideas and support arguments about science-related matters using relevant science vocabulary, evidence and logic.</p> <p><b>SRC 3-5.2(b)</b> Read fiction and non-fiction science-related text, and compose narrative, expository and persuasive texts.</p> <p><b>SRC 3-5.2(c)</b> Search the web and locate relevant science information.</p>
<p><b>SRC 3-5.3</b> Mathematics provides useful tools for the description, analysis and presentation of scientific data and ideas.</p>	<p><b>SRC 3-5.3(a)</b> Use measurement tools and units to describe objects and materials.</p> <p>Use mathematics to analyze, interpret and present data.</p>

**\* NOTE: THE CONTENT STANDARDS FOR SCIENTIFIC REASONING AND COMMUNICATION SHOULD BE LEARNED WITHIN THE CONTEXT OF THE CONTENT STANDARDS AND EXPECTED PERFORMANCES FOR LIFE, PHYSICAL AND EARTH SCIENCES.**

## Grade 3: Exploring Our World

Content Standards	Expected Performances
<p style="text-align: center;"><b>Changes in Matter: Is It There If We Can't See It?</b></p> <p><b>3.1</b> Materials can exist in different states (e.g., solids, liquids or gases), and can be changed by heating or cooling.</p> <p><b>3.2</b> Substances have characteristic properties and a mixture of substances can be separated using one or more of these characteristics.</p>	<p><b>3(a)</b> Explore the properties of water in solid, liquid and gas states.</p> <p><b>3(b)</b> Explore and describe the effect of heating and cooling on water properties (e.g., freezing, melting, evaporation, condensation).</p> <p><b>3(c)</b> Explain how physical properties of materials (e.g., floating and sinking, magnetism, particle size) can be used to separate mixtures to their components.</p>
<p style="text-align: center;"><b>Habitats: How Do They Support Life?</b></p> <p><b>3.3</b> Organisms can survive and reproduce only in environments that meet their basic needs.</p> <p><b>3.4</b> All animals depend on plants. Some animals eat plants and others eat the animals that eat plants.</p>	<p><b>3(d)</b> Explore how different animals obtain water, food and shelter in specific habitats.</p> <p><b>3(e)</b> Describe the relationships among different organisms (e.g., producers and consumers, predator and prey) in simple food chains.</p>
<p style="text-align: center;"><b>Water: What Makes the Rain?</b></p> <p><b>3.5</b> Water covers the majority of the Earth's surface and it circulates through the crust, oceans and atmosphere.</p>	<p><b>3(f)</b> Explore the properties of water (e.g., transparency, shapelessness, flow) and how it moves through different types of earth materials.</p> <p><b>3(g)</b> Explore the relationship between the water cycle, cloud formation and precipitation.</p>
<p style="text-align: center;"><b>Earth Materials: How Do We Use Them to Improve Our Lives?</b></p> <p><b>3.6</b> Earth materials provide resources for all living things, but these resources are not unlimited and should be conserved.</p>	<p><b>3(h)</b> Relate the properties of rocks, soils and minerals to their potential uses.</p> <p><b>3(i)</b> Explore various ways to conserve earth resources (e.g., reduce, reuse, and recycle).</p>

## Grade 4: Exploring Changes

Content Standards	Expected Performances
<p><b>Electricity, Magnetism and Motion: How Are They Related?</b></p> <p><b>4.1</b> Electricity in circuits can produce light, heat, sound and magnetic effects.</p> <p><b>4.2</b> Changes in speed or direction of motion are caused by forces; the greater the force is, the greater the change.</p>	<p><b>4(a)</b> Explore the flow of current in simple circuits, and the transformation of electrical energy into light, heat, and sound.</p> <p><b>4(b)</b> Explore the properties of magnets and how they can be used to make objects move.</p> <p><b>4(c)</b> Explore the effects of pushes and pulls on the motion of objects.</p> <p><b>4(d)</b> Explore the effect of force and mass on the motion of objects.</p>
<p><b>Biomes: How Do Plants and Animals Survive In Different Places?</b></p> <p><b>4.3</b> The living and nonliving things in a region interact with each other.</p> <p><b>4.4</b> Organisms have physical and behavioral adaptations that improve their chances to survive in different environments.</p>	<p><b>4(e)</b> Compare the environmental conditions in New England to those of tropical rain forest, desert, and arctic tundra.</p> <p><b>4(f)</b> Explore and describe the anatomical and behavioral adaptations of plants and animals to variations in environmental conditions such as temperature and precipitation.</p>
<p><b>Land Formations: What Shapes the Face of the Earth?</b></p> <p><b>4.5</b> The Earth's surface is shaped by slow processes, such as erosion and weathering, and by rapid processes, such as earthquakes and volcanoes.</p>	<p><b>4(g)</b> Explore and describe the role of water in erosion and river formation.</p> <p><b>4(h)</b> Describe the role of volcanoes and earthquakes in shaping the Earth's surface.</p>
<p><b>How Do Human Activities Affect Ecosystems?</b></p> <p><b>4.6</b> When the environment changes, some organisms survive and reproduce and others die or move to another location.</p>	<p><b>4(i)</b> Describe the relationship between changes in the environment and the extinction of organisms, and explore efforts to save endangered species.</p>

## Grade 5: Exploring Energy & Life Cycles

Content Standards	Expected Performances
<p><b>Light and Sound: How Do We Sense Them?</b></p> <p><b>5.1</b> Sound is a form of energy that is produced by the vibration of objects and is transmitted by the vibration of air and objects.</p> <p><b>5.2</b> Light is a form of energy that travels in a straight line and can be reflected by a mirror, refracted by a lens, or absorbed by objects.</p>	<p><b>5(a)</b> Explore how sound is produced and transmitted.</p> <p><b>5(b)</b> Explore and explain how the pitch and volume of sound can be changed.</p> <p><b>5(c)</b> Explore the transmission, absorption, reflection and refraction of light.</p> <p><b>5(d)</b> Explore how the structures of the human ear and eye enable hearing and seeing.</p>
<p><b>Nature and Nurture: How Do They Affect the Characteristics of Plants?</b></p> <p><b>5.3</b> Many characteristics of an organism are inherited from the parents, but others result from interactions with the environment and cannot be passed to the next generation.</p>	<p><b>5(e)</b> Explore the life cycles of flowering plants (i.e., germination, pollination, seed production and dispersal.)</p>
<p><b>Earth, Moon and Sun: How Do They Interact?</b></p> <p><b>5.4</b> The predictable movement of the Earth and the moon relative to the sun explains cycles such as day/night, years, moon phases and eclipses.</p>	<p><b>5(f)</b> Explore and describe the role of the sunlight in the appearance of the moon.</p> <p><b>5(g)</b> Explore the pattern of the lunar cycle to explain the orbit of the moon around the Earth.</p> <p><b>5(h)</b> Explore the movement of the Earth (e.g., rotation and revolution) around the sun and its relation to day, night and the seasons.</p>
<p><b>Technology: How Does It Help Us to Extend Our Senses?</b></p> <p><b>5.5</b> Humans have the capacity to build and use tools to advance the quality of their lives.</p>	<p><b>5(i)</b> Compare and contrast the structures of the human eye and the camera.</p> <p><b>5(j)</b> Compare and contrast the structures of the human ear and the telephone.</p>