

2nd / 3rd / 4th Grade
Essential Standards
Science

Based on State Key Content Standards compiled by the Pulliam Group

Strand	Standard 2 nd Grade	Standard 3 rd Grade	Standard 4 th Grade
Physical Science	<p>1. The motion of objects can be observed and measured.</p> <p>a. Students know that the position of an object can be described by locating it in relation to another object or to the background.</p> <p>b. Students know that an object's motion can be described by recording a change in position of the object over time.</p> <p>c. Students know that the way to change how something is moving, or the amount of force, of the push or pull.</p>	<p>1. Energy and matter have multiple forms and can be changed from one form to another.</p> <p>a. Students know that energy comes from the Sun to Earth in the form of light.</p> <p>b. Students know that sources of stored energy take many forms, such as food, fuel, and batteries.</p> <p>d. Students know that energy can be carried from one place to another by waves, such as water waves and sound waves, by electric current, and by moving objects.</p> <p>e. Students know that matter has three forms: solid, liquid, and gas.</p> <p>f. Students know that evaporation and melting are changes that occur when the objects are heated.</p> <p>2. Light has a source and travels in a direction.</p> <p>a. Students know that sunlight can be blocked to create shadows.</p> <p>b. Students know that light is reflected from mirrors and other surfaces.</p> <p>d. Students know that an object is seen when light traveling from the object enters the eye.</p>	<p>1. Electricity and magnetism are related effects that have many useful applications in everyday life.</p> <p>a. Students know how to design and build simple series and parallel circuits by using components such as wires, batteries, and bulbs.</p> <p>b. Students know how to build a simple compass and use it to detect magnetic effects, including Earth's magnetic field.</p> <p>c. Students know electric currents produce magnetic fields and know how to build a simple electromagnet.</p>
Life Science	<p>2. Plants and animals have predictable life cycles.</p> <p>a. Students know that organisms reproduce offspring of their own kind and that the offspring resemble their parents and one another.</p> <p>b. Students know that the sequential stages of life cycles are different for different animals, such as butterflies, frogs, and mice.</p> <p>e. Students know that light, gravity, touch, or environmental stress can affect the germination, growth and development of plants.</p>	<p>3. Adaptations in physical structure or behavior may improve an organism's chance for survival.</p> <p>a. Students know that plants and animals have structures that serve different functions in growth, survival, and reproduction.</p> <p>b. Students know examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands, and wetlands.</p> <p>d. Students know that when the environment changes, some plants and animals survive and reproduce; others die or move to new locations.</p>	<p>2. All organisms need energy and matter to live and grow.</p> <p>a. Students know that plants are the primary source of matter and energy entering most food chains.</p> <p>b. Students know that producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in an ecosystem.</p> <p>c. Students know that decomposers, including many fungi, insects and microorganisms, recycle matter from dead plants and animals.</p> <p>3. Living organisms depend on one another and on the environment for survival.</p> <p>a. Students know that ecosystems can be characterized by their living and nonliving components.</p> <p>b. Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.</p>
Earth Science	<p>3. Earth is made of materials that have distinct properties that provide resources for human activities.</p> <p>a. Students know how to compare the physical properties of different kinds of rocks and know that rock is composed of different combinations of minerals.</p> <p>c. Students know that soil is made partly from weathered rock and partly from organic materials and those soils differ in their color, texture, capacity to retain water and ability to support the growth of many kinds of plants.</p>	<p>4. Objects in the sky move in regular and predictable patterns.</p> <p>a. Students know that the patterns of stars stay the same, although they appear to move across the sky nightly, and different stars can be seen in different seasons.</p> <p>b. Students know the way in which the Moon's appearance changes during the four-week lunar cycle.</p> <p>d. Students know that Earth is one of several planets that orbit the Sun and that the Moon orbits the Earth.</p> <p>e. Students know that the position of the Sun in the sky</p>	<p>4. The properties of rocks and minerals reflect the processes that formed them.</p> <p>a. 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>5. Waves, wind, water, and ice shape and reshape Earth's land surface.</p> <p>a. 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</p>

		changes during the course of the day and from season to season.	eruptions, and earthquakes. c. Students know that 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).
Investigations and Experimentation	<p>b. Students will measure length, weight, temperature, and liquid volume with appropriate tools and express those measurements in metric system units.</p> <p>c. Students will compare and sort common objects according to two or more physical attributes (e.g., color, shape, texture, size, weight).</p> <p>f. Students will use magnifiers or microscopes to observe and draw descriptions of small objects.</p> <p>g. Students will follow oral instructions for a scientific investigation.</p>	<p>d. Students will predict the outcome of a simple investigation and compare the result with the prediction.</p> <p>e. Students will collect data in an investigation and analyze those data to develop a logical conclusion.</p>	<p>b. Students will measure and estimate the weight, length, or volume of objects.</p> <p>e. Students will construct and interpret graphs from measurements.</p> <p>f. Students will follow a set of written instruction for a scientific investigation (or building project). From standards for grade five:</p> <p>a. Students will classify objects (e.g., rocks, plants, leaves) in accordance with appropriate criteria.</p>