

NATIONAL SCIENCE EDUCATION STANDARDS

Classroom Science from A to Z

GRADE	CATEGORY	SUB-CATEGORY	STANDARD
K-4	Earth and Space Science	Changes In The Earth And Sky	Objects in the sky have patterns of movement. The sun, for example, appears to move across the sky in the same way every day, but its path changes slowly over the seasons. The moon moves across the sky on a daily basis much like the sun. The observable shape of the moon changes from day to day in a cycle that lasts about a month.
K-4	Earth and Space Science	Changes In The Earth And Sky	The surface of the earth changes. Some changes are due to slow processes, such as erosion and weathering, and some changes are due to rapid processes, such as land-slides, volcanic eruptions, and earthquakes.
K-4	Earth and Space Science	Changes In The Earth And Sky	Weather changes from day to day and over the seasons. Weather can be described by measureable quantities, such as temperature, wind direction, and speed, and precipitation.
K-4	History and Nature of Science	Science As A Human Endeavor	Although men and women using scientific inquiry have learned much about the objects, events, and phenomena in nature, much more remains to be understood. Science will never be finished.
K-4	History and Nature of Science	Science As A Human Endeavor	Many people choose science as a career and devote their entire lives to studying it. Many people derive great pleasure from doing science.
K-4	History and Nature of Science	Science As A Human Endeavor	Men and women have made a variety of contributions throughout the history of science and technology.
K-4	History and Nature of Science	Science As A Human Endeavor	Science and technology have been practiced by people for a long time.
K-4	Physical Science	Light, Heat, Electricity, and Magnetism	Electricity in circuits can produce light, heat, sound, and magnetic effects. Electrical circuits require a complete loop through which an electrical current can pass.

K-4	Physical Science	Light, Heat, Electricity, and Magnetism	Heat can be produced in many ways, such as burning, rubbing, or mixing one substance with another. Heat can move from one object to another by conduction.
K-4	Physical Science	Light, Heat, Electricity, and Magnetism	Light travels in a straight line until it strikes an object. Light can be reflected by a mirror, refracted by a lens, or absorbed by the object.
K-4	Physical Science	Light, Heat, Electricity, and Magnetism	Magnets attract and repel each other and certain kinds of other materials.
K-4	Physical Science	Position and Motion of Objects	An object's motion can be described by tracing and measuring its position over time.
K-4	Physical Science	Position and Motion of Objects	Position of an object can be described by locating it relative to another object or the background.
K-4	Physical Science	Position and Motion of Objects	Sound is produced by vibrating objects. The pitch of the sound can be varied by changing the rate of vibration.
K-4	Physical Science	Position and Motion of Objects	The position and motion of objects can be changed by pushing or pulling. The size of the change is related to the strength of the push or pull.
K-4	Physical Science	Properties of Objects and Materials	Materials can exist in different states- solid, liquid, and gas. Some common materials such as water, can be changed from one state to another by heating or cooling.
K-4	Physical Science	Properties of Objects and Materials	Objects are made of one or more materials, such as paper, wood, and metal. Objects can be described by the properties of the materials from which they are made, and those properties can be used to separate or sort a group of objects or materials.
K-4	Physical Science	Properties of Objects and Materials	Objects have many observable properties, including size, weight, shape, color, temperature, and the ability to react with other substances. Those properties can be measured using tools, such as rulers, balances, and thermometers.
K-4	Science and Technology	Abilities of Technological Design	Communicate a problem, design, and solution.
K-4	Science and Technology	Abilities of Technological Design	Evaluate a product or design.
K-4	Science and Technology	Abilities of Technological Design	Identify a simple problem.

K-4	Science and Technology	Abilities of Technological Design	Implementing proposed solutions.
K-4	Science and Technology	Abilities of Technological Design	Propose a solution.
K-4	Science and Technology	Understanding About Science And Technology	People have always had problems and invented tools and techniques (ways of doing something) to solve problems. Trying to determine the effects of solutions helps people avoid some new problems.
K-4	Science and Technology	Understanding About Science And Technology	People have always had questions about their world. Science is one way of answering questions and explaining the natural world.
K-4	Science and Technology	Understanding About Science And Technology	Scientists and engineers often work in teams with different individuals doing different things that contribute to the results. This understanding focuses primarily on teams working together and secondarily, on the combination of scientist and engineer teams.
K-4	Science and Technology	Understanding About Science And Technology	Tools help scientists make better observations, measurements, and equipment for investigations. They help scientists see, measure, and do things that they could not otherwise see, measure, and do.
K-4	Science and Technology	Understanding About Science And Technology	Women and men of all ages, backgrounds, and groups engage in a variety of scientific and technological work.
K-4	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Ask a question about objects, organisms, and events in the environment.
K-4	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Employ simple equipment and tools to gather data and extend the senses.
K-4	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Plan and conduct a simple investigation.
K-4	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Use data to construct a reasonable explanation.
5-8	Science and Technology	Understanding About Science And Technology	Technological designs have constraints.
5-8	Science and Technology	Understanding About Science And Technology	Technology solutions have intended benefits and unintended consequences.

5-8	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Communicate scientific procedures and explanations.
5-8	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Design and conduct a scientific investigation.
5-8	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Develop descriptions, explanations, predictions, and models using evidence.
5-8	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Identify questions that can be answered through scientific investigations.
5-8	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Recognize and analyze alternative explanations and predictions.
5-8	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Think critically and logically to make the relationships between evidence and explanations.
5-8	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Use appropriate tools and techniques to gather and analyze, and interpret data.
5-8	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Use mathematics in all aspects of scientific inquiry.