Grade 4 Science Overview (PA STEELS Standards) [August 2025]

A Guide to learning Science in Grade 4@OJRSD

Grade 4 science challenges students to think deeply, gather evidence, and make meaningful connections between science and the world around them. Through hands-on investigations, data analysis, modeling, collaboration, and creative problem-solving, students develop the critical thinking skills they'll need for upper-elementary and middle school science.

FALL UNITS: Energy, Information, Technology & Natural Resources

Sending Information with Patterns
Students generate and compare multiple ways to send information—such as using patterns of light, sound, or symbols—to understand how communication systems work.

How Energy Moves from Place to Place
Students observe and communicate how energy can travel by sound, light, heat, and electrical currents. Hands-on investigations show how energy moves and how it changes the objects it touches.

Magnetism & Design Problems
Students define simple problems that can be solved using magnets and explore how magnetic forces can help create solutions.

Changing Perspectives on Resources & Technology
Students investigate how people's views about natural resources and technology have changed over time, and how disagreements about these issues have shaped societies and nations.

Natural Resources, Energy & the Environment
Students gather and combine information to learn where fuels and energy come from and how using these resources affects the environment.

Engineering & Design
Throughout the fall, students design solutions, test them, and improve their ideas based on feedback and scientific principles.

WINTER UNITS: Waves, Light, Earth Processes & Environmental Change

How We See Objects
Students develop a model to show that light reflects off objects and enters the eye, making it possible for us to see.

Wave Patterns & Motion
Students model waves to understand amplitude, wavelength, and how waves—such as water or sound waves—can cause objects to move.

Environmental & Social Impacts of Designs and Actions
Students examine how human decisions, inventions, and actions affect both the environment and society, including the consequences of their own daily choices.

Changing Environments & Changing Life
Students make claims about how plants and animals may change—or struggle—when their environment shifts, and evaluate solutions to protect living things.

Reducing the Impacts of Natural Hazards
Students explore solutions that reduce the effects of natural Earth processes—like floods, earthquakes, or landslides—on human communities.

How Organisms Affect and Are Affected by Their Environment
Students analyze how living things, including humans, interact with and change their environments, and how the environment influences them in return.

Engineering & Design
Students apply the engineering design process to improve solutions related to waves, hazards, and environmental change.

SPRING UNITS: Ecosystems, Fossils, Adaptations & Environmental Systems

Advantageous Traits & Survival
Students use evidence to explain how variations among individuals of the same species—such as size, speed, coloration, or behavior—may give some organisms a survival advantage.

Survival in Different Habitats
Students construct arguments about which organisms survive well, less well, or not at all in specific environments.

How People Depend on & Change the Environment
Students examine and critique ways people rely on the environment for survival and how human activities change natural systems.

Fossils & Earth's History
Students analyze fossil data to learn about ancient organisms and the environments they lived in long ago.

Energy in Food Comes from the Sun
Students use models to show that the energy animals use for growth, repair, movement, and warmth originally comes from the sun, passing through plants and food webs.

Local Issues Connected to Larger Systems
Students develop models to demonstrate how local environmental challenges connect to larger environmental and human systems.

Engineering & Design
Students design and refine solutions to challenges involving ecosystems, adaptations, and environmental issues.