Grade 2 Science Overview (PA STEELS Standards) [August 2025]

A Guide to learning Science in Grade 2@OJRSD

In Grade 2, science encourages students to observe carefully, ask thoughtful questions, and use evidence to explain their ideas. By connecting hands-on learning with real-world issues and the natural environment, students develop curiosity, responsibility, and foundational STEM skills that prepare them for future learning.

FALL UNITS: Properties of Materials, Light & Sound

Classifying Materials by Their Properties
Students conduct investigations to identify and sort materials based on observable characteristics like texture, hardness, flexibility, or color.

From Pieces to New Creations
Students explore how objects made of smaller parts can be taken apart and put back together to form new structures.

Heating and Cooling
Students test materials to discover that some changes caused by heating or cooling can be reversed (melting and freezing) while others cannot (baking clay).

Choosing the Best Material
By testing materials, students analyze data to determine which ones are best suited for specific purposes—for example, choosing a waterproof material for a rain hat.

Light and Materials
Students investigate what happens when different materials are placed in the path of a beam of light—exploring shadows, transparency, and reflection.

Communicating with Light or Sound
Students design and build a simple device that uses light (like a flashlight signal) or sound (like a vibration alarm) to communicate over a distance.

Engineering & Design
Students continue refining problem-solving and design skills using the engineering design process.

WINTER UNITS: Earth's Changes, Patterns, and Interactions

How Wind and Water Change the Land
Students explore how wind and water can shape the land over time. They compare different solutions—such as planting trees, using shrubs, or building barriers—to see which work best for slowing erosion.

Daylight and Seasons
Students observe how the amount of daylight changes throughout the year and connect these patterns to seasons.

Fast and Slow Earth Events
Using books, videos, and other resources, students learn that some changes on Earth happen quickly (like volcanic eruptions) while others happen slowly (like erosion).

Cultural Connections to Nature
Students explore how people from different cultures—including their own—interact with nature and express beliefs about the environment through traditions, stories, and practices.

Patterns of the Sun, Moon, and Stars
Students observe the sun, moon, and stars and describe predictable patterns, such as the moon changing shape or stars appearing only at night.

How Living Things Change Their Environment
Students examine how plants and animals, including humans, modify their surroundings to meet their needs—such as tree roots breaking sidewalks or animals digging burrows.

Where Water Is Found
Students learn that water is found in oceans, lakes, rivers, ice, and snow. They also observe that water can be a solid (ice) or a liquid.

Engineering & Design
Children apply the engineering design process to solve problems—planning, building, testing, and refining their ideas.

SPRING UNITS: Living Things, Habitats, and Environmental Action

Animals That Work in Groups
Students construct arguments, using evidence, that some animals survive better when they live or work in groups—for example, wolves hunting or bees protecting a hive.

Understanding Places and Their Importance
Students explore why places differ in their physical features and why certain locations hold special meaning or value to people and communities.

Diversity in Habitats
By observing plants and animals, students compare the variety of life found in different habitats such as forests, ponds, or meadows.

How Plants Spread Seeds and Pollen
Students design a model that mimics how an animal spreads seeds or pollinates plants—for example, building a model that 'collects' pollen like a bee.

Helping Our Local Environment
Students plan and carry out an investigation to address a real issue in their school or community—such as reducing litter or protecting a natural space.

Engineering & Design
Students apply innovative thinking to design, test, and refine solutions based on natural structures or local environmental needs.