Grade 6 Science Overview (PA STEELS Standards) [August 2025]

A Guide to learning Science in Grade 6@OJRSD

In Grade 6 Science, students explore Earth's dynamic systems, the structure of living things, and how light, matter, and energy interact. Instruction follows the Pennsylvania STEELS Standards and emphasizes hands-on investigations, scientific modeling, data analysis, and real-world problem solving.

Grade 6 Science builds curiosity about the natural world while strengthening critical thinking skills. Through investigations and modeling, students learn how scientists explain Earth's processes and living systems

Unit 1: Plate Tectonics – Earth's Changing Surface

Students investigate the powerful forces that shape Earth's crust and drive changes over millions of years.

Students will:

Analyze evidence that Earth's surface has changed over time.
Interpret fossil, rock, and seafloor data to explain plate movement.
Explore different plate boundaries and the features they create.
Connect plate tectonics to earthquakes, volcanoes, and tsunamis.

Real-World Connection: Students examine real-world hazards and consider strategies communities use to reduce risk.

Unit 2: Light and Matter – Illuminating Interactions

Students explore how light behaves and how it interacts with matter at the atomic and material level.

Students will:

Model matter as being made of atoms and molecules.
Investigate how light is reflected, absorbed, or transmitted.
Explore how material properties affect light behavior.
Apply concepts to natural phenomena and optical technologies.

Real-World Connection: Students investigate how different surfaces and materials affect the way light travels.

Unit 3: Cells & Systems – Life at the Microscopic Level
Students explore cells as the basic unit of life and how cells work together in systems.

Students will:
Gather evidence that all living things are made of cells.
Model how cell parts contribute to overall function.
Explain how tissues, organs, and systems work together.
Apply cell concepts to growth, development, and responses to stimuli.

Real-World Connection: Students connect cell structure and function to real-life biological processes.

Unit 4: Astronomy – Earth's Place in Space
Students explore the motions of Earth, the Moon, and the Sun and their effects on observable patterns.

Students will:
Model the Earth–Sun–Moon system.
Explain lunar phases, eclipses, and seasons.
Analyze the role of gravity in the solar system.
Compare sizes and distances of objects in space.

Real-World Connection: Students develop scale models to better understand Earth's position in the universe.

Unit 5: Weather, Climate & the Water Cycle
Students study how energy from the sun drives weather, climate patterns, and the movement of water on Earth.

Students will:
Model the water cycle and its driving forces.
Distinguish between weather and climate.
Analyze atmospheric and ocean circulation patterns.
Examine evidence of climate change and its impacts.

Real-World Connection: Students investigate how changes in Earth's systems affect ecosystems and human communities.

Unit 6: Natural Hazards – Earth in Peril
Students investigate natural hazards and how science and engineering help reduce their impact.

Students will:
Analyze data related to storms, earthquakes, and other hazards.
Identify patterns that help predict hazardous events.
Evaluate the impacts of natural disasters on communities.
Design solutions that improve disaster preparedness and resilience.

Real-World Connection: Students apply science and engineering practices to explore real-world disaster mitigation strategies.

Engineering & Scientific Practices (Throughout the Year)
Across all units, students ask questions, analyze data, develop models, and design solutions to better understand Earth and life systems.

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