ILLINOIS STATE BOARD OF EDUCATION

SCIENCE GRADES 3-5

Theory of Action: Academic standards represent a collective commitment around what students should learn each year. The state assessment asks students to demonstrate their knowledge, skills, and understanding related to these standards using a common measure. The resulting data allows us to see patterns in performance that should guide school and district improvement, helping identify areas of strength and opportunity.

Role of Performance Level Descriptors in Defining Proficiency: Performance level descriptors bridge the state assessment to classroom instruction and the systems of formative assessments that guide local instruction and choices about individual students. *Academic proficiency represents a range of observable student performance characteristics*. There are multiple pathways to proficiency, and students rely upon their strengths differently within that range of performance.

Proficiency and Difficulty: A student's ability to demonstrate proficiency is influenced by the complexity of the texts or stimuli presented, tasks they're asked to complete, and the contexts in which they are engaged. As student performance improves, students are typically able to handle more challenging texts/stimuli, tasks, and contexts, and are able to demonstrate their skills and knowledge more accurately and consistently.

Earth and Space Science [i]	Student performance indicates the ability to ...
Level 4 **Above Proficient**	• Analyze and compare interactions between Earth's spheres (geosphere, hydrosphere, biosphere, atmosphere) and their impact on climate and landforms. • Use evidence from fossils and rock layers to construct a timeline of Earth's geological changes. • Develop and refine models showing how Earth's tilt and orbit influence seasonal changes and long-term climate variations. • Use multiple sources of evidence (e.g., star brightness, distance, and size) to explain why the sun appears different from other stars when viewed from Earth. • Apply knowledge of planetary systems to compare Earth's characteristics to those of other planets in our solar system.
Level 3 **Proficient**	• Use evidence (e.g., fossils, rock layers, climate data) to explain Earth's history and environmental changes over time. • Develop models to describe planetary movements (e.g., how Earth's rotation causes daily shadow changes, how Earth's revolution around the sun causes seasons). • Use data to analyze weather patterns, climate trends, and water distribution. • Explains that other stars in the night sky appear smaller and dimmer due to their distance from Earth.
Level 2 **Approaching Proficient**	• Describe simple geological processes like erosion, the water cycle, and how rainfall shapes the land. • Use basic maps and graphs to identify trends in weather and climate. • Explain that the sun appears larger and brighter than other stars due to its proximity to Earth. • Describe that Earth rotates on its axis, leading to day and night.
Level 1 **Below Proficient**	• Identify basic Earth features (e.g., mountains, oceans, rock layers). • Recognize the sun as a star and identifies changes in shadows throughout the day. • Recognize simple weather patterns and basic climate differences. • Identify where fresh and saltwater exist on Earth.

Life Science [ii]	Student performance indicates the ability to ...

Level 4 Above Proficient	• Compare adaptations across different species and explains why some organisms survive better than others. • Critique and refine models showing interactions between organisms and their environment. • Evaluate the impact of human activity on ecosystems and biodiversity. • Use multiple forms of evidence to support claims about species survival and environmental change.
Level 3 Proficient	• Use evidence to explain species adaptations, how living things depend on each other, and how environmental changes impact survival. • Develop models to show the flow of energy in an ecosystem (e.g., producer-consumer relationships). • Analyze how inherited traits and environmental factors affect organisms. • Interpret fossil evidence to understand past environments and evolutionary changes.
Level 2 Approaching Proficient	• Describe food chains, animal behaviors, and simple plant adaptations. • Identify that traits can be inherited from parents or influenced by the environment. • Recognize that fossils provide evidence of past life and environments. • Explain that organisms interact within ecosystems to survive.
Level 1 Below Proficient	• Recognize basic life processes (e.g., birth, growth, reproduction, death). • Identify different types of plants and animals. • Recognize that plants need air and water to grow. • Explain that animals form groups or live alone.

Physical Science[iii]	*Student performance indicates the ability to ...*
Level 4 Above Proficient	• Design and refine experiments to test motion, energy conservation, and matter interactions. • Develop and compare models to describe abstract concepts (e.g., atomic structure, gravitational force). • Use mathematical and graphical data to analyze relationships between force, mass, and acceleration. • Explore real-world applications of energy transfer (e.g., renewable energy, engineering solutions).
Level 3 Proficient	• Conduct investigations to test force effects, energy transfer, and material properties. • Use models to explain conservation of matter and how energy moves through systems (e.g., electricity, sound waves). • Use data to predict motion patterns and interactions between forces. • Explain how waves can be used for communication (e.g., radio, fiber optics).
Level 2 Approaching Proficient	• Describe how materials change when heated, cooled, or mixed. • Explain how energy moves (e.g., heat transfer, simple circuits). • Describe patterns of motion and how forces affect speed or direction. • Identify that waves can carry energy (e.g., sound, light).
Level 1 Below Proficient	• Identify basic properties of matter (e.g., solid, liquid, gas). • Recognize that forces (pushes and pulls) can change motion. • Identify sources of energy (e.g., light, heat, sound). • Recognize that some objects stick to magnets.

Engineering and Scientific Inquiry[iv]	*Student performance indicates the ability to ...*

Level 4 Above Proficient	• Develop and refine innovative solutions based on data analysis. • Design and evaluate complex investigations, incorporating peer review and multiple testing variables. • Critically examine the effectiveness of engineering solutions and suggests improvements. • Use multiple sources of evidence to refine models and scientific explanations.
Level 3 Proficient	• Construct arguments using evidence to justify solutions. • Design and test models for real-world applications (e.g., water filtration, wind energy). • Collect and interpret experimental data to answer scientific questions. • Explain the role of technology and engineering in scientific discoveries.
Level 2 Approaching Proficient	• Compare multiple solutions to real-world problems (e.g., preventing soil erosion). • Plan and carry out simple investigations with guidance. • Use basic models to represent scientific concepts
Level 1 Below Proficient	• Identify simple problems (e.g., flooding, erosion). • Recognize tools used for scientific investigations. • Identify examples of technology solving problems.

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[i] Includes standards 4-ESS1-1,5-ESS1-1,5-ESS1-2,4-ESS2-2, 3-ESS2-1,4-ESS2-1,5-ESS2-1,3-ESS2-2,5-ESS2-2, 3-ESS3-1,4-ESS3-1,5-ESS3-1,4-ESS3-2

[ii] Includes standards 3-LS2-1,5-LS2-1,3-LS3-1,3-LS3-2, 3-LS4-1,3-LS4-2,3-LS4-3,3-LS4-4

[iii] Includes standards 5-PS1-1,5-PS1-2,5-PS1-3,5-PS1-4, 3-PS2-1,5-PS2-1,3-PS2-2,3-PS2-3,3-PS2-4, 4-PS3-1,5-PS3-1,4-PS3-2,4-PS3-3,4-PS3-4,4-PS4-1,4-PS4-2,4-PS4-3

[iv] Includes standards 3-5 ETS 1-1, 3-5 ETS 1-2, 3-5 EST 1-3. Please note: these standards are integrated into the ESS, LS and PS standards as the primary means by which a student is able to demonstrate their understanding of the domain-specific content. They are not assessed independent of content on the state assessment.