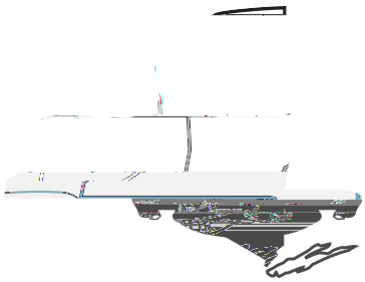

New York State Testing Program

Educator Guide to the 2025 Elementary-level (Grade 5) and Intermediate-level (Grade 8) Science Tests

THE UNIVERSITY OF THE STATE OF NEW YORK

Regents of The University

LESTER W. YOUNG, JR.,	B.S., M.S., Ed.D.	Beechhurst
JUDITH CHIN,	B.S., M.S. in Ed.	Little Neck
ROGER TILLES, B.A., J.D.		Manhasset
CHRISTINE D. CEA, B.A., M.A., Ph.D.		Staten Island
WADE S. NORWOOD, B.A.		Rochester
JAMES E. COTTRELL, B.S., M.D.		New York
CATHERINE COLLINS, R.N., N.P., B.S., M.S. in Ed., Ed.D.		Buffalo E.

Table of Contents

Foreword

The New York State P-12 Science Learning Standards

The New York State P-12 Science Learning Standards (NYSP-12SLS) are a series of Performance Expectations (PEs) that define what students should know and be able to do as a result of their study of science. The N uanda be abl0.004 Tw [(P)-8 011 Tbl0.004o-6 (an tr)3 (e)4 612 792 r5 Td [(T)-32 (o

Dimension 2: Disciplinary Core Ideas (DCI)

The continuing expansion of scientific knowledge makes it unrealistic to teach all the ideas related to a given discipline in exhaustive detail during the K–12 years. Given the vast amount of information available today, an important role of science education is to allow students with sufficient core knowledge so that they can acquire additional information on their own. By focusing on a limited set of ideas and practices in science and engineering, students will learn to evaluate and select reliable sources of scientific information, allowing them to continue their development well beyond their K–12 school years as science learners, users of scientific knowledge, and perhaps as producers of such knowledge.

The Disciplinary Core Ideas (DCIs) are built on the notion of learning as a developmental progression. They are designed

Test Specifications

The Elementary-level and Intermediate-level Science Tests are rooted in a re411.04 level (F-11(an)2 (d)T0 1

- providing evidence of the transfer, conversion, and conservation of energy and applying th processes to a design solution; [4-PS3-2, 4-PS3-4]
- addressing misconceptions, such as [illegible]

Claim #3 (Earth and Space Sciences):

A student can analyze scientific evidence of patterns and cause and effect relationships between Earth and its place in the solar system and between the interconnected processes and large-scale system interactions that operate among Earth's spheres on different scales, including how these processes impact humans and how humans affect natural resources.

Evidence: *A student demonstrates understanding of Earth and Space Sciences through application, evaluation, analysis, and/or synthesis using Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts related to:*

- using Earth system data to describe weather and climate conditions across various temporal and spatial scales; [3-ESS2-1, 3-ESS2-2]
- investigating the relationship between the movement of water among Earth's spheres and weather; [3-ESS2-3]
- utilizing scientific evidence to mitigate meteorological hazards; [3-ESS3-1]
- synthesizing information about the impacts of using natural resources for energy; [4-ESS3-2]

Intermediate-level Claims and Evidence (6–8 Grade Band)

Claim #1 (Physical Science):

A student can apply scientific practices, principles, and technologies to the structure and properties of matter, chemical reactions between substances, forces and their different types of interactions, the types and transfer of energy, and the properties of waves and their interaction with different inte substances.

Evidence: *A student demonstrates understanding of Physical Science through application, evaluation, analysis, and/or synthesis using Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts related to:*

- identifying substances based on their chemical and physical properties, and investigating if a chemical reaction or physical change occurs when substances are mixed; [MS-PS1-7, MS-PS1-8, MS-PS1-2]
- describing the changes that occur to a substance when thermal energy is added or removed, and developing a device that optimizes either the absorption or release of thermal energy; [MS-PS1-4, MS-PS1-6, MS-PS3-3]
- modeling the atomic structure of substances, and investigating the conservation of mass in chemical reactions; [MS-PS1-1, MS-PS1-5]
- describing the societal impacts of developing and using synthetic materials; [MS-PS1-3]
- investigating the effects of forces on objects by applying Newton's Laws of Motion; [MS-PS2-1, MS-PS2-2]
- investigating magnetic and electric forces and providing evidence that fields exist between objects exerting these forces; [MS-PS2-3, MS-PS2-5]
- providing evidence for the factors that affect attractive gravitational interactions; [MS-PS2-4]
- analyzing empirical data pertaining to the factors that affect kinetic energy; [MS-PS3-1]
- modeling how distance between objects affects the potential energy of a system; [MS-PS2-2]
- investigating the factors that affect thermal energy transfer in a sample of matter; [MS-PS3-4]
- providing empirical evidence that when work is done on or by a system, the energy in that system changes; [MS-PS3-5]
- investigating electric currents and energy transfer; [MS-PS3-6]
- quantitatively and qualitatively modeling the characteristics and energy of waves; [MS-PS4-1]
- modeling the interactions between waves and matter; [MS-PS4-2]
- comparing digital and analog signals using qualitative information. [MS-PS4-3]

Claim #3 (Earth and Space Sciences):

A student can apply scientific practices, principles, and technologies to the cyclic patterns ar properties of objects in the solar system and the role of gravity in the motions of objects within space systems, the evidence from geoscience processes and plate tectonics, at varying scales, to explain th history of Earth, the flow of energy that drives the cycling of Earth's materials resulting in an uneven distribution of resources, the causes for the change in weather and climate patterns, the impact human have on Earth's systems, and the mitigation of the effects of natural hazards on humans.

Evidence: *A student demonstrates understanding of Earth and Space Sciences through application, evaluation, analysis, and/or synthesis using Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts related to:*

- x modeling to describe the cyclic patterns of events that occur due to motions in the Earth-Sun-Moon system; [MS-ESS1-1]
- x modeling to describe the influence of gravity on celestial motions; [MS-ESS1-2]
- x analyzing empirical data to compare properties of solar system objects; [MS-ESS1-3]
- x explaining Earth's history using evidence from rock strata; [MS-ESS1-4]
- x explaining how Earth's surface has changed at different temporal and spatial scales [MS-ESS2-2]
- x analyzing data to provide evidence that tectonic plates have moved; [MS-ESS2-3]
- x modeling to describe how energy drives the cycling of Earth materials; [MS-ESS2-1, MS-ESS2-4]
- x explaining how geologic processes influence the distribution of Earth's resources; [MS-ESS3-1]
- x using data to describe the relationship between air mass interactions and weather; [MS-ESS2-5]
- x modeling patterns of atmospheric and oceanic circulation to determine their effect on climate; [MS-ESS2-6]
- x asking questions about the factors that cause global warming; [MS-ESS3-5]
- x analyzing data to predict and mitigate the effects of natural hazards; [MS-ESS3-2]
- x optimizing design solutions that reduce a human environmental impact; [MS-ESS3-3]
- x using evidence to identify the relationship between human population growth and its impact on natural resources and the environment. [MS-ESS3-4]

Performance Level Definitions

For each subject area, students perform along a continuum of the knowledge and skills necessary to me the demands of the New York State Learning Standards. New York State Elementary-level and Intermediate-level Science assessments are designed to classify student performance into one of four levels based on the knowledge and skills the student has demonstrated. Due to the need to identify stude proficiency, the state tests must provide students at each performance level opportunities to demonstra their knowledge and skills in the Learning Standards.

These performance levels are defined as:

NYS Level 4

Students performing at this level excel in standards for their grade. They demonstrate knowledge, skills, and practices embodied by the Learning Standards that are considered more than sufficient for the expectations at this grade.

NYS Level 3

Students performing at this level are proficient in standards for their grade. They demonstrate knowledge, skills, and practices embodied by the Learning Standards that are considered sudtie-12 e

Test Blueprint

The tables below illustrate the domain-level test blueprint percent ranges for each grade level. All questions on the 2025 Elementary-level and Intermediate-level Science Tests measure the New York State P–12 Science Learning Standards. All the Performance Expectations (PEs) at each grade level are connected to the Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs), and Crosscutting Concepts (CCCs). Therefore, the 2025 Elementary-level and Intermediate-level Science Tests will include questions that require students to connect all three dimensions (PEs, SEPs, DCIs, CCCs).

Domain-level Operational Test Blueprint—Percent Ranges for ELS			
Physical Sciences	Life Science	Earth and Space Sciences	Engineering, Technology, and

Question clusters include an introduction (which informs students of how many questions are a part of the cluster), a title, multiple stimuli (reading passages, data tables, graphs, diagrams, photos, etc.), and questions that draw on one or more of the stimuli. The questions within the cluster will include a mix of multiple choice and constructed response questions. There will be variation in the number of questions that make up each cluster depending upon the assessment storyline; as a result, there may be slight variation in the total number of exam questions (see Test Design below) from year to year.

To preview several question clusters at both the Elementary level and Intermediate level, go to the Question Sampler (https://ny.nextera.questarai.com/tds/#practice).

Stimuli

Elementary level and Intermediate level question clusters include multiple stimuli. Stimuli can include reading passages, data tables, graphs, diagrams, and photos. These stimuli provide students with an interesting and relatable setting that drives the progression of the assessment storyline. Stimuli are scientifically accurate and use real data when applicable. These come from vetted sources and are appropriate to the level being tested. When possible, New York State phenomena are emphasized, as seen in the ELS Sampler 1 (North American Beaver), and ILS Sampler 2 (Fossil Parks in New York State).

Question Formats

The 2025 Elementary level and Intermediate level Science Tests

Some questions on the 2025 Elementary-level and Intermediate-level Science Tests will assess PEs at higher PLD levels. To facilitate this, these questions might include both a TEI portion and an open-ended text portion or other combinations of constructed-response components. These questions allow students to demonstrate higher-level skills and knowledge, while providing students scaffolding within the question.

Test Design

The chart below illustrates the test designs for the 2025 Elementary-level and Intermediate-level Science Tests. Approximately 60 percent of each test will be comprised of multiple-choice questions, while approximately 40 percent will be constructed-response questions (including Technology Enhanced). Embedded field test questions are included in the number of questions below. It will not be apparent to students whether a question is an embedded field test question that does not count toward their score or an operational test question that does count toward their score. There will be variation in the number of questions that make up each cluster, and as a result the total number of questions for each test will vary.

Testing Sessions

The 2025 Elementary-level and Intermediate-level Science Tests each consist of a single session that is administered in one day (Grades 3–8 Test Schedules, https://www.nysed.gov/state-assessment/grades-3-8-test-schedules). Students will be provided as much time as necessary within the confines of the regular school day to complete the test. School personnel should use their best professional judgment and knowledge about individual students to determine how long a student should be engaged in taking a particular assessment and when it is in the student's best interest to end the test session.

As long as students are productively working, they should be allowed as much time as they need within the confines of the regular school day to complete the 2025 Elementary- and Intermediate-level Science Tests. For planning purposes, schools should allocate a minimum of 90 minutes for the administration of the ELS test. Likewise, for planning purposes, schools should allocate a minimum of 120 minutes for the administration of the ILS test. This information is intended for test preparation and planning only, as test duration will vary among students. Timing data from the 2024 ELS and ILS test administration showed that most students completed the tests in 120 minutes. Students should be productively engaged in completing the assessment and not be retained beyond that point. School personnel should use their best professional judgment and knowledge about individual students to determine how long a student should be engaged in taking an assessment and when it is in the student's best interest to release them.

The tests must be administered under standard conditions and the directions must be followed carefully. The same test administration procedures must be used with all students so that valid inferences can be drawn from the test results.

NYSED devotes great attention to the security and integrity of the New York State Testing Program. School administrators and teachers involved in the administration of State assessments are responsible for understanding and adhering to the instructions set forth in the School Administrator's Manual and Teacher's Directions when released.

When Students Have Completed Their Tests

Students should be encouraged to go back and check their work when they have finished their assessment. Once a student has completed their test, examination materials should be collected by the proctor. After a student's assessment materials are collected and the student has submitted the test, that student may be permitted to read silently. This privilege is granted at the discretion of each school. Talking or working on other schoolwork is not permitted.[3]

Given that the Spring 2025 tests have no time limits, schools and districts have the discretion to create their own approach to ensure that all students who are productively working are given the time they need within the confines of the regular school day to continue to take the tests. If the test is administered in a large group setting, school administrators may prefer to allow students who have finished to turn in their test, hand in their test materials, and then leave the room. Please take care that students leave the room as quietly as possible so as not to disturb the students who are still working on the test.

[3] For more detailed information about test administration, including proper procedures for proctoring, please refer to the *School Administrator's Manual* and the *Teacher's Directions*.

Scoring the Elementary-level and Intermediate-level Science Tests

The 2025 Elementary-level (Grade 5) and Intermediate-level (Grade 8) Science Computer-Based Tests will be scored by the Department's contractor, NWEA. Schools will still be responsible for the scoring of science tests administered on paper. Additional information will be available in the School Administrator's Manual and Scoring Leader Handbook when released.

Rulers and Protractors

For CBT, a ruler tool and a protractor tool are provided for the Elementary-level (Grade 5) Science Test and the Intermediate-level (Grade 8) Science Test as part of the Nextera™ Test Delivery System. Students taking PBT should be provided with a ruler for their exclusive use during the test. Students with disabilities may use adapted rulers if this is indicated as a testing accommodation on the student's Individualized Education Program or Section 504 Accommodation Plan. There are no questions on the 2025 Elementary-level (Grade 5) Science Test nor the Intermediate-level (Grade 8) Science Test that require use of a protractor. However, as this tool is available on CBT, students taking PBT may be provided with a protractor should they request one.

Calculators

For CBT, a four-function calculator is provided for the Elementary-level (Grade 5) Science Test and a