

THE UNIVERSITY OF THE STATE OF NEW YORK

GRADE 8

INTERMEDIATE-LEVEL SCIENCE TEST

June 5, 2023

FOR TEACHERS ONLY

RATING GUIDE FOR PART II

This rating guide contains detailed directions for rating student responses to Part II of the written test in Intermediate-Level Science. All raters should become familiar with the detailed directions before beginning to rate student responses.

Appendix A provides a performance levels chart that translates final scores into four performance levels. A conversion chart is needed to translate a student's raw score on the written portion to a final score. This chart will be posted on the Department's web site <https://www.nysed.gov/state-assessment/elementary-and-intermediate-level-tests> through the "Scoring Information" link. Conversion charts provided for previous administrations of this test must not be used to determine students' final scores for the 2023 administration of this test.

Appendix B provides several charts that link the individual items on the test to the *Intermediate-Level Science Core Curriculum Grades 5–8*. This core curriculum is based on the *New York State Learning Standards in Mathematics, Science, and Technology*.

Any clarifications or changes to this rating guide will be posted on the New York State Education Department web site at <https://www.nysed.gov/state-assessment/elementary-and-intermediate-level-tests> during the rating period. Check the "Scoring Information" link at this web site before starting the rating process and several times during the rating period.

Questions regarding this test should be directed to the Office of State Assessment at (518) 474-5902.

Note: Retain this guide for future use. Do *not* return it to SED.

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THE STATE EDUCATION DEPARTMENT
ALBANY, NEW YORK 12234

Detailed Directions for Rating Part II of the Written Test

Note: Teachers are not permitted to score their own students' responses.

This guide contains detailed directions and criteria for scoring student responses to the questions in Part II of the written test. Raters should become familiar with the detailed directions and rating criteria before beginning to score the student responses. Refer to the *2023 Manual for Administrators and Teachers* for suggestions about organizing the rating process.

In rating the student responses, follow the procedure outlined below.

1. Familiarize yourself with the system your school is using for processing the answer papers and recording the student scores.
2. Have a test booklet on hand. Read each Part II question carefully. Note exactly what is required.
3. Carefully read the criteria provided in this guide for scoring each question.
4. For most questions, examples of acceptable responses are provided. Acceptable responses include, but are not limited to, the examples given. Other responses that convey the same general meaning as those given in this guide should also receive credit. Raters must use their professional judgment to decide if the student's answer meets the criteria. You may find it helpful to discuss questionable student responses with other raters.
5. Acceptable responses separated by a slash (/) are considered to be the same response and should be counted for credit once.
6. To ensure the accuracy of overlays, select a printer setting such as *full*, *actual size*, or *100%* when printing this document. Do not select the *fit to print* setting.
7. Discuss with other raters the requirements of each question and the scoring criteria. When you are certain that you clearly understand the requirements and criteria, you are ready to begin scoring the student responses.
8. It is recommended that you score all the student responses to one question or group of questions before proceeding to the next question or group of questions. This method helps ensure that the scoring criteria are applied consistently.
9. Students should *not* lose credit for incorrect spelling, grammar, capitalization, or punctuation.
10. For questions where there is more than one answer and a specific number of answers are required, (e.g., identify *three* materials, give *two* examples), if the student provides more than the required number of responses, score only the required number, in the order in which they appear.

11. Sometimes in questions where there is only one acceptable answer, the student will provide more than one answer. These must be considered on a case-by-case basis. If the second answer indicates that the student does not understand the question or is simply guessing, then credit should not be allowed.
12. Record the number of credits you allow for each question in the table provided on the back cover of the test booklet. The maximum number of credits for each question appears in the table.
13. When you have finished scoring all the Part II questions, add the credits allowed for each question to obtain the total raw score for Part II.
14. Follow your school's procedure for transferring Part II scores to the student's scannable answer sheet. These are local decisions that depend on the answer sheet your school uses. Some schools will transfer a score for each Part II question while others may transfer a total raw score for Part II. Check to be certain that the student name on the test booklet matches the name on the answer sheet.

Online Submission of Teacher Evaluations of the Test to the Department

Suggestions and feedback from teachers provide an important contribution to the test development process. The Department provides an online evaluation form for State assessments. It contains spaces for teachers to respond to several specific questions and to make suggestions. Instructions for completing the evaluation form are as follows:

1. Go to <https://www.nysed.gov/state-assessment/teacher-feedback-state-assessment>.
2. Select the test title.
3. Complete the required demographic fields.
4. Complete each evaluation question and provide comments in the space provided.
5. Click the SUBMIT button at the bottom of the page to submit the completed form.

46 [1] Allow 1 credit if *both* responses are acceptable, as shown below.

Stratopause 0°C

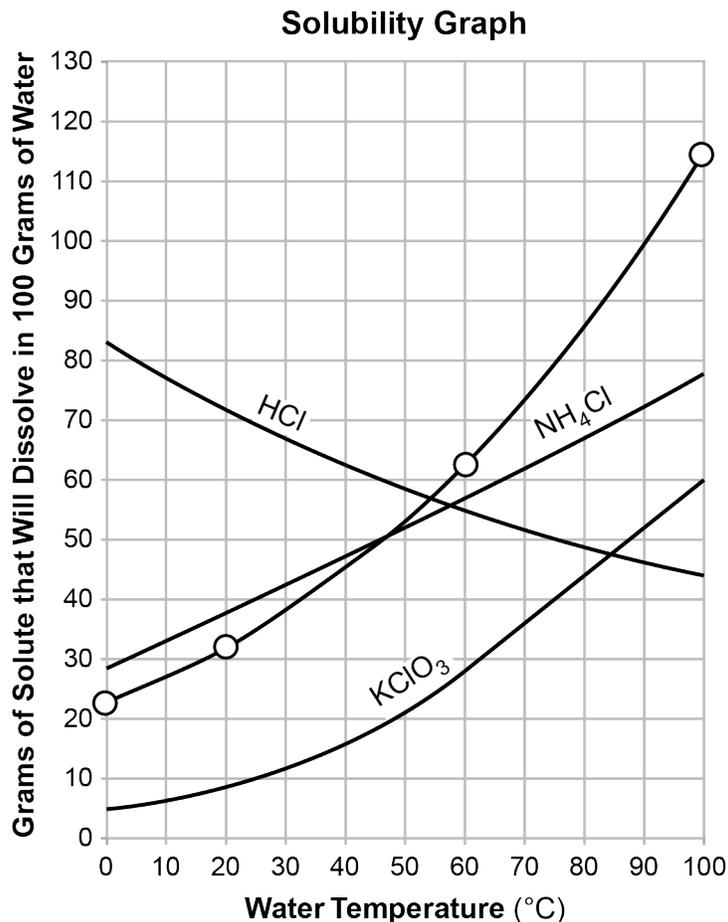
Mesopause -90°C

47 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Water vapor concentration decreases as altitude increases.
- an inverse relationship
- an indirect relationship
- negative correlation

- 48 [1] Allow 1 credit if the center of *all four Xs* are within or touch the circles shown and are correctly connected with a line that passes within or touches each circle.

Example of a 1-credit response:



Note: Allow credit if a symbol other than an **X** is used to plot the data.

Do *not* allow credit for a bar graph.

Do *not* allow credit if no line is drawn.

It is recommended that an overlay of the same scale as the student test booklet be used to ensure reliability in rating.

- 49 [1] Allow 1 credit for any value from 83°C to 85°C.

50 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Break the piece into smaller pieces.
- Make a powder out of the one piece of NH₄Cl.
- Stir the water/ NH₄Cl solution.

51 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- They were the control group.
- to compare the plants with the plant food to the plants without food to see if there is a difference

52 [1] Allow 1 credit for the plant food.

53 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Plants with food were 5 cm taller.
- There were two more leaves on the plants that received plant food.
- Plants with food were all taller.
- The leaves did not turn yellow on the plants with food.

Note: Do *not* allow credit for restating the conclusion on day 35 because this is not evidence in support of it.

54 [1] Allow 1 credit for rabbits *or* mice *or* grasshoppers.

55 [1] Allow 1 credit. Acceptable responses include:

- grains → grasshoppers → owls
- grains → mice → owls
- grasses → grasshoppers → owls

56 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Fewer rabbits means the foxes will most likely eat more mice.
- Foxes eat rabbits and mice, so fewer rabbits result in more mice being eaten.

57 [1] Allow 1 credit for microscope/compound microscope.

58 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Chloroplasts absorb sunlight to make sugar.
- because chloroplasts make food for the plant
- The structure helps make/create food.
- Photosynthesis occurs in the chloroplasts.

59 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- cell wall
- large vacuole

Note: Do *not* allow credit for “vacuole” alone because animal cells have vacuoles, they are just not as large.

60 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- circulatory
- cardiovascular
- vascular

61 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- find the pulse rate
- measure how many pulses occur per minute
- place hand/stethoscope on a person’s chest and determine the number of heartbeats in a period of time
- use a heart monitor
- feel the person’s wrist/neck to find pulse and count the number of beats in a period of time

62 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- This is a type of asexual reproduction.
- Both offspring came from only one parent.
- The sea star underwent regeneration and each part grew into an offspring from the same parent.

63 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- It can spread from person to person.
- You can catch it from someone else.
- The bacteria can be transmitted from one person to another.
- It is easily spread or contagious.

Note: Do not allow credit for “it is caused by a germ/bacterial/microbe” because this is stated in the question.

- 64** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Chemicals are produced that identify and destroy the bacteria.
 - The body produces white blood cells/antibodies.
 - The body's immune system fights the disease.
 - fever activates the body's immune system
- 65** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Younger fossils are on top of older fossils.
 - The trilobite fossils are at the bottom.
- 66** [1] Allow 1 credit for sedimentary *or* the name of a specific type of sedimentary rock, such as shale, siltstone, sandstone, limestone, or dolostone.
- 67** [1] Allow 1 credit for repel *and* an acceptable explanation. Acceptable explanations include, but are not limited to:
- Like poles repel.
 - Two north poles are facing each other.
- 68** [1] Allow 1 credit for skin tone *or* eye color *or* hair color.
- 69** [1] Allow 1 credit for *Aa/aA* for both parent 1 and parent 2.
- 70** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The body changes form at different stages of development.
 - The adult has legs and the tadpole does not.
 - The adult has no tail.
 - As the frog develops, more complex structures form.
 - The tadpole looks different from the frog.

71 [1] Allow 1 credit for sperm/male gamete/male sex cell *and* egg/female gamete/female sex cell/ovum.

72 [1] Allow 1 credit for a correctly completed chart, as shown below.

Plate Boundary	Plates Sliding Past Each Other	Plates Colliding	Plates Moving Apart
A			✓
B		✓	
C	✓		

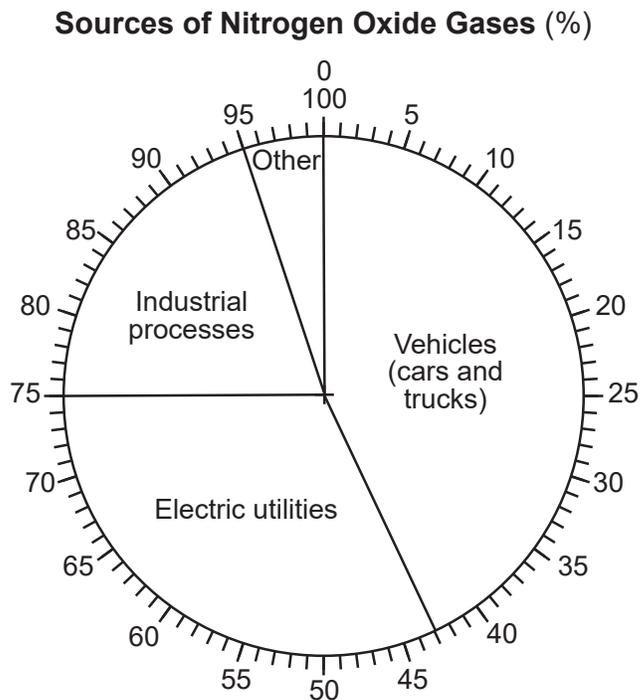
Note: Allow credit if a student uses a symbol other than a check mark (✓).

73 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- mountains
- volcanoes
- ocean trenches
- earthquakes
- subduction
- tsunami
- faulting
- rift/rift valley
- mid-ocean ridge

74 [1] Allow 1 credit for a pie graph that is correctly constructed and labeled.

Example of a 1-credit response:



Note: Sources with the correct percentage can be placed in any order on the pie graph.

75 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Vehicles produce less/20% less sulfur dioxide than industrial processes.
- Vehicles are 4% and industrial processes are 24%.
- Industrial processes produce more/20% more sulfur dioxide.
- There is a 20% difference between vehicles and industrial processes.
- The sulfur dioxide produced by vehicles is six times less than the sulfur dioxide produced by industrial processes.

76 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Burn less fossil fuels.
- Place scrubbers on smoke stacks and automobile exhausts to control acid rain gas emission.
- Drive cars less.
- Drive a hybrid/electric car.
- Find cleaner ways to produce energy like solar panels.
- Enact laws and regulations to control sulfur dioxide and nitrogen oxides gas emissions.

77 [1] Allow 1 credit for 2 *or* 2.0 m/s².

78 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- The total mass of cart *B* is greater.
- A 2-kg mass was added to the cart.
- Cart *B* is heavier.

79 [1] Allow 1 credit for location *A* and an acceptable explanation. Acceptable responses include, but are not limited to:

- Potential energy increases with elevation/height/altitude.
- Potential energy is the greatest at the highest elevation.
- It is at the top of the slope.

80 [1] Allow 1 credit for gravity.

81 [1] Allow 1 credit for *B*.

82 [1] Allow 1 credit for three/3 months.

83 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Earth revolves around/orbits the Sun.
- tilt of Earth's axis
- parallelism of Earth's tilted axis
- changing angle of the Sun's incoming rays

84 [1] Allow 1 credit. Acceptable explanations include, but are not limited to:

- They reduce the need for oil and natural gas.
- They provide a renewable and/or clean energy source.
- They reduce pollution/do not produce greenhouse gases.

85 [1] Allow 1 credit. Acceptable explanations include, but are not limited to:

- The animals may need to move to another location.
- They could lose their habitat/homes.
- air and noise pollution from all the traffic
- Animal habitats may have been destroyed to build the highway.

Appendix A

New York State Grade 8 Intermediate-Level Science Test June 2023

Performance Levels Chart

The chart on the next page defines the four performance levels for this test. The state-designated level of performance for this test is a final score of 65 or higher (level 3 and 4). Students scoring below 65 (levels 1 and 2) must be provided with academic intervention services according to section 100.2(ee)(i) of the Regulations of the Commissioner of Education. The chart provides the score intervals and a brief description of student abilities at each level.

The conversion chart will be posted on the Department’s website at <https://www.nysed.gov/state-assessment/elementary-and-intermediate-level-tests>.

Note: Conversion charts provided for previous administrations of this test must not be used to determine students’ final scores for the 2023 administration.

Performance Levels

Grade 8 Intermediate-Level Science Test

Level	Score Range	Description of Student Performance
4	85 – 100	<p>Meeting the Standards with Distinction</p> <ul style="list-style-type: none"> • Student demonstrates superior understanding of the intermediate-level science content and concepts for each of the learning standards and key ideas assessed. • Student demonstrates superior intermediate-level science skills related to each of the learning standards and key ideas assessed. • Student demonstrates superior understanding of the intermediate-level science content, concepts, and skills required for a secondary academic environment.
3	65 – 84	<p>Meeting the Standards</p> <ul style="list-style-type: none"> • Student demonstrates understanding of the intermediate-level science content and concepts for each of the learning standards and key ideas assessed. • Student demonstrates the science skills required for intermediate-level achievement in each of the learning standards and key ideas assessed. • Student demonstrates understanding of the intermediate-level science content, concepts, and skills required for a secondary academic environment.
2	44 – 64	<p>Not Fully Meeting the Standards</p> <ul style="list-style-type: none"> • Student demonstrates only minimal proficiency in intermediate-level science content and concepts in most of learning standards and key ideas assessed. • Student demonstrates only minimal proficiency in the skills required for intermediate-level achievement in most of the learning standards and key ideas assessed. • Student demonstrates marginal understanding of the science content, concepts, and skills required for a secondary academic environment.
1	0 – 43	<p>Not Meeting the Standards</p> <ul style="list-style-type: none"> • Student is <i>unable</i> to demonstrate understanding of the intermediate-level science content and concepts in most of the learning standards and key ideas assessed. • Student is <i>unable</i> to demonstrate the science skills required for intermediate-level achievement in most of the learning standards and key ideas assessed. • Student is <i>unable</i> to demonstrate evidence of the basic science knowledge and skills required for a secondary academic environment.

Appendix B

Item Maps

New York State Grade 8 Intermediate-Level Science Test June 2023 Written Test Performance Test Form A

Item maps contained in this appendix:

- Reference to *Intermediate-Level Science Core Curriculum Grades 5-8* — June 2023 Written Test and Performance Test, Form A
- Reference to Process Skills Based on Standard 4 — June 2023 Written Test and Performance Test, Form A
- Reference to Core Curriculum for Individual Test Questions — June 2023 Written Test
- Reference to Core Curriculum for Individual Test Questions — Performance Test, Form A

Note: Core curriculum is based on *NYS Learning Standards for Mathematics, Science and Technology*.

<i>NYS Learning Standards for Mathematics, Science, and Technology</i> Standard/Area	<i>Reference to Intermediate-Level Science Core Curriculum</i> Key Idea or Performance Indicator	Performance Test Form A Question Number			June 2023 Written Test Question Number
		Station 1	Station 2	Station 3	
Standard 1 Scientific Inquiry Key Idea 1 The central purpose of scientific inquiry is to develop explanations of natural phenomena in a continuing, creative process.	1.1 Formulate questions independently with the aid of references appropriate for guiding the search for explanations of everyday observations.	2 3			
	1.2 Construct explanations independently for natural phenomena, especially by proposing preliminary visual models of phenomena.		8	4	37, 39
	1.3 Represent, present, and defend their proposed explanations of everyday observations so that they can be understood and assessed by others.		7 8	5 6	
	1.4 Seek to clarify, to assess critically, and to reconcile with their own thinking the ideas presented by others, including peers, teachers, authors, and scientists.		7		
Standard 1 Scientific Inquiry Key Idea 2 Beyond the use of reasoning and consensus, scientific inquiry involves the testing of proposed explanations involving the use of conventional techniques and procedures and usually requiring considerable ingenuity.	2.1 Use conventional techniques and those of their own design to make further observations and refine their explanations, guided by a need for more information.	3 4 5 6		1 2	24
	2.2 Develop, present, and defend formal research proposals for testing their own explanations of common phenomena, including ways of obtaining needed observations and ways of conducting simple controlled experiments.	2 3 4			38, 51, 52, 53
	2.3 Carry out their research proposals, recording observations and measurements (e.g., lab notes, audiotape, computer disk, videotape) to help assess the explanation.	1 3 4	1 2 3	1 2 4	
Standard 1 Scientific Inquiry Key Idea 3 The observations made while testing proposed explanations, when analyzed using conventional and invented methods, provide new insights into phenomena.	3.1 Design charts, tables, graphs and other representations of observations in conventional and creative ways to help them address their research question or hypothesis.	1 3 5	2 8		48, 74
	3.2 Interpret the organized data to answer the research question or hypothesis and to gain insight into the problem.	1	4 5 6	4, 5, 6, 7	32, 42, 49
	3.3 Modify their personal understanding of phenomena based on evaluation of their hypothesis.			5	
Standard 1 Mathematical Analysis	1 Abstraction and symbolic representation are used to communicate mathematically.		3 8		47, 77
	2 Deductive and inductive reasoning are used to reach mathematical conclusions.		4, 5, 6, 7		45
	3 Critical thinking skills are used in the solution of mathematical problems.				57

<i>NYS Learning Standards for Mathematics, Science, and Technology</i> Standard/Area	<i>Reference to Intermediate-Level Science Core Curriculum</i> Key Idea or Performance Indicator	Performance Test Form A Question Number			June 2023 Written Test Question Number
		Station 1	Station 2	Station 3	
Standard 1 Engineering Design	T 1.1 - T 1.5 Engineering design is an iterative process involving modeling and optimization to develop technological solutions to problems within given constraints.				
Standard 2 Information Systems	1.1 - 1.5 Information technology is used to retrieve, process, and communicate information as a tool to enhance learning.				
	2.1 - 2.3 Knowledge of the impacts and limitations of information systems is essential to its effectiveness and ethical use.				
	3.1 - 3.3 Information technology can have positive and negative impacts on society, depending upon how it is used.				
Standard 4 Physical Setting	1 Earth and celestial phenomena can be described by principles of relative motion and perspective.				16, 18, 19, 29, 81, 82, 83
	2 Many of the phenomena that we observe on Earth involve interactions among components of air, water, and land.				17, 21, 22, 30, 41, 44, 72, 73, 80
	3 Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.				20, 23, 25, 31 36, 50
	4 Energy exists in many forms, and when these forms change energy is conserved.				10, 28, 34, 35, 67, 79
	5 Energy and matter interact through forces that result in changes in motion.				33, 78
Standard 4 Living Environment	1 Living things are both similar to and different from each other and from nonliving things.				1, 2, 3, 9, 13, 58, 59, 60, 61, 64
	2 Organisms inherit genetic information in a variety of ways that result in continuity of structure and function between parents and offspring.				7, 8, 14, 62, 68, 69
	3 Individual organisms and species change over time.				4, 6, 65, 66
	4 The continuity of life is sustained through reproduction and development.				15, 70, 71
	5 Organisms maintain a dynamic equilibrium that sustains life.				54, 63
	6 Plants and animals depend on each other and their physical environment.				5, 26, 27
	7 Human decisions and activities have had a profound impact on the physical and living environment.				11, 12, 75, 76, 84, 85

<i>NYS Learning Standards for Mathematics, Science, and Technology</i> Standard/Area	<i>Reference to Intermediate-Level Science Core Curriculum</i> Key Idea or Performance Indicator	Performance Test Form A Question Number			June 2023 Written Test Question Number
		Station 1	Station 2	Station 3	
Standard 6 Interconnectedness: Common Themes	Students will understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning.				
Standard 6 Systems Thinking	1.1 – 1.4 Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions				
Standard 6 Models	2.1 – 2.3 Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.	1, 2, 3, 4	3, 8	4	40, 43, 46, 55, 56
Standard 6 Magnitude and Scale	3.1 – 3.2 The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in scale that affect the behavior and design of systems.				
Standard 6 Equilibrium and Stability	4.1 - 4.2 Equilibrium is a state of stability due either to a lack of change (static equilibrium) or a balance between opposing forces (dynamic equilibrium).				
Standard 6 Patterns of Change	5.1 - 5.2 Identifying patterns of change is necessary for making predictions about future behavior and conditions.		3, 4, 5, 6, 7	6	
Standard 6 Optimization	6.1 - 6.2 In order to arrive at the best solution that meets criteria within constraints, it is often necessary to make trade-offs.				
Standard 7 Interdisciplinary Problem Solving	1 Connections The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those related to issues of science/technology/society, consumer decision making, design, and inquiry into phenomena.				
	2 Strategies Solving interdisciplinary problems involves a variety of skills and strategies, including effective work habits; gathering and processing information; generating and analyzing ideas; realizing ideas; making connections among the common themes of mathematics, science, and technology; and presenting results.				

Grade 8 Intermediate-Level Science Reference to Process Skills Based on Standard 4

	Process Skills (From <i>Intermediate-Level Science Core Curriculum Grades 5-8</i>)	Performance Test Form A Question Number			June 2023 Written Test Question Number
		Station 1	Station 2	Station 3	
General Skills	1. follow safety procedures in the classroom and laboratory				
	2. safely and accurately use the following measurement tools: metric ruler, balance, stopwatch, graduated cylinder, thermometer, spring scale, voltmeter		1		
	3. use appropriate units for measured or calculated values			1, 2, 3	
	4. recognize and analyze patterns and trends		7, 8		53, 75
	5. classify objects according to an established scheme and a student-generated scheme				31, 54
	6. develop and use a dichotomous key	1 – 5, 9			
	7. sequence events				65
	8. identify cause-and-effect relationships		4, 5, 6	6, 7	53, 56, 67, 84, 85
	9. use indicators and interpret results				
Living Environment Skills	1. manipulate a compound microscope to view microscopic objects	6, 8			57
	2. determine the size of a microscopic object, using a compound microscope	7			
	3. prepare a wet mount slide				
	4. use appropriate staining techniques				37
	5. design and use a Punnett square or a pedigree chart to predict the probability of certain traits				69
	6. classify living things according to a student-generated scheme and an established scheme	9			
	7. interpret and/or illustrate the energy flow in a food chain, energy pyramid, or food web				55
	8. identify pulse points and pulse rates				61
	9. identify structure and function relationships in organisms				
Physical Setting Skills	1. given the latitude and longitude of a location, indicate its position on a map and determine the latitude and longitude of a given location on a map				
	2. using identification tests and a flow chart, identify mineral samples				
	3. use a diagram of the rock cycle to determine geological processes that led to the formation of a specific rock type				43, 44
	4. plot the location of recent earthquake and volcanic activity on a map and identify patterns of distribution				
	5. use a magnetic compass to find cardinal directions				
	6. measure the angular elevation of an object, using appropriate instruments				
	7. generate and interpret field maps including topographic and weather maps				
	8. predict the characteristics of an air mass based on the origin of the air mass				22
	9. measure weather variables such as wind speed and direction, relative humidity, barometric pressure, etc.				39
	10. determine the density of liquids, and regular- and irregular-shaped solids			3	
	11. determine the volume of a regular- and an irregular-shaped solid, using water displacement				
	12. using the periodic table, identify an element as a metal, nonmetal, or noble gas				31
	13. determine the identity of an unknown element, using physical and chemical properties				
	14. using appropriate resources, separate the parts of a mixture				25
	15. determine the electrical conductivity of a material, using a simple circuit				
	16. determine the speed and acceleration of a moving object				77

Grade 8 Intermediate-Level Science
Reference to Core Curriculum for Individual Test Questions on Written Test—June 2023

Question Number	MST Learning Standard	Area within Standard 4 (PS or LE)	Key Idea or Major Understanding	Other Standards, Key Ideas, or Major Understandings	Process Skills Based on Standard 4
1	4	LE	1.1b	LE 5.2a	
2	4	LE	1.2 h		
3	4	LE	1.2a	LE 1.2c, St.6 KI 2.2	
4	4	LE	3.2b		
5	4	LE	6.2b		
6	4	LE	intro 3		
7	4	LE	2.2c	St.6 KI 2.2	
8	4	LE	2.1e	LE 4.2b	
9	4	LE	1.1e	St.6 KI 2.2	
10	4	PS	4.4e	PS 4.4d	
11	4	LE	7.1a	St.6 KI 2.2	
12	4	LE	7.2b	St.6 KI 2.2	
13	4	LE	1.2e		
14	4	LE	2.1b	LE 2.1a	
15	4	LE	4.4d		
16	4	PS	1.1b		
17	4	PS	2.2q		
18	4	PS	1.1g		
19	4	PS	1.1h		
20	4	PS	3.2a		
21	4	PS	2.2j		
22	4	PS	2.1l		PS #8
23	4	PS	3.1a		
24	1		2.1d		
25	4	PS	3.1g	St.6 KI 2.2	PS #4
26	4	LE	6.1a	St.6 KI 2.2	
27	4	LE	6.1a	St.6 KI 2.2	
28	4	PS	4.4a		
29	4	PS	1.1e	St.6 KI 2.2	
30	4	PS	2.2f	St.6 KI 2.2	
31	4	PS	3.3g	St.6 KI 2.2	GS#5, PS#12
32	1		53.2h	PS 3.3g	
33	4	PS	5.2d	PS 5.2e	
34	4	PS	4.5b	PS 4.4d	
35	4	PS	4.2a	PS 4.2d, 4.2b, St.6, KI 2.2	
36	4	PS	3.1f	PS 3.1e	
37	1		S1.2c		LE#4
38	1		S2.2c	LE 6.1b, 7.1b, 7.1c	
39	1		S1.2d	St.6, KI 2.2	PS#9
40	6		KI 2.2	PS 1.1e, St.6 KI 5	
41	4	PS	2.1b	St.1, S3.3f, S3.2h	
42	1		S3.2		

Grade 8 Intermediate-Level Science

Reference to Core Curriculum for Individual Test Questions on Written Test—June 2023

Question Number	MST Learning Standard	Area within Standard 4 (PS or LE)	Key Idea or Major Understanding	Other Standards, Key Ideas, or Major Understandings	Process Skills Based on Standard 4
43	6		KI 2.2	PS 2.2h	PS#3
44	4	PS	2.2h	St.6 KI 2.2	PS#3
45	1		M 2.1a	St.1, S3.h	
46	6		KI 2.2	PS 2.1a	
47	1		M 1.1b	St.6 KI 2.2, PS 2.1a, St.1 S3.2h	
48	1		S3.1a	PS 3.1b	
49	1		S3.2h	PS 3.1b	
50	4	PS	3.1b	St.6 KI 2.2, St.1 53.2h	
51	1		S2.2c		
52	1		S2.2d		
53	1		S2.2b	LE 4.3f	GS#4, GS#8
54	4	LE	5.1e	St.6 KI 2.2	
55	6		2.2	LE 5.1e, 6.1a	LE#7
56	6		2.2	LE 5.1e, 6.1b	GS#8
57	1		M3.1a	LE 1.1a	LE#1
58	4	LE	1.1c		
59	4	LE	1.1c		
60	4	LE	1.2f	St.6 KI 2.2	
61	4	LE	1.2f	St.6 KI 2.2	LE#8
62	4	LE	2.1d	LE 2.1a, St.6 KI 2.2	
63	4	LE	5.2f	St.6 KI 2.2	
64	4	LE	1.2j		
65	4	LE	3.2c	St.6 KI 2.2	
66	4	LE	3.2c	PS 2.1f, St.6 KI 2.2	
67	4	PS	4.4g	St.6 KI 2.2	GS#8
68	4	LE	2.2c	St.6 KI 2.2	
69	4	LE	2.2c	St.6 KI 2.2	LE#5
70	4	LE	4.3d	St.6 KI 2.2	
71	4	LE	4.2a	St.6 KI 2.2	
72	4	PS	2.2f	St.6 KI 2.2	
73	4	PS	2.2f	St.6 KI 5, PS 2.2a	
74	1		53.1a	LE 7.2d	
75	4	LE	7.2d	St.1 M2.1a, 53.2h	GS#4
76	4	LE	7.2d	St.1 S1.2, St.7 1.2	
77	1		M1.1c	PS 5.1d, St.6 KI 2.2	PS#16
78	4	PS	5.1d	St.6 KI 2.2	
79	4	PS	4.1e	St.6 KI 2.2	
80	4	PS	2.1i	St.6 KI 2.2	
81	4	PS	1.1i	St.6 KI 2.2	
82	4	PS	1.1h	St.6 KI 2.2, St.1 M1.1c	
83	4	PS	1.1i	St.6 KI 2.2	
84	4	LE	7.2d	St.6 KI 2.2	GS#8
85	4	LE	7.2c	St.6 KI 2.2	GS#8

Grade 8 Intermediate-Level Science
Reference to Core Curriculum for Individual Test Questions on Performance Test Form A

Station	Question Number	Credits	Reference to Grade 8 Intermediate-Level Science Core Curriculum		
			MST Standard 1 (Mathematical Analysis, Scientific Inquiry and Engineering Design) Key Idea/Performance Indicator	MST Standard 6 Interconnected/ Common Themes	Process Skills Based on MST Standard 4
1	1	3	S 2.3, S 3.1, S 3.2	KI 2	General Skill 6
	2	2	S 1.1, S 2.2	KI 2	General Skill 6
	3	2	S 1.1, S 2.1, S 2.2, S 2.3, S 3.1	KI 2	General Skill 6
	4	2	S 2.1, S 2.2, S 2.3	KI 2	General Skill 6
	5	2	S 2.1, S 3.1		General Skill 6
	6	1	S 2.1		LE Skill 1
	7	1			LE Skill 2
	8	1			LE Skill 1
	9	1			General Skill 6 LE Skill 6
2	1	5	S 2.3		General Skill 2
	2	3	S 2.3, S 3.1		
	3	1	S 2.3 M 1	KI 2 KI 5	
	4	1	S 3.2 M 2	KI 5	General Skill 8
	5	1	S 3.2 M 2	KI 5	General Skill 8
	6	1	S 3.2 M 2	KI 5	General Skill 8
	7	2	S 1.3, S 1.4 M 2	KI 5	General Skill 4
	8	3	S 1.2, S 1.3, S 3.1 M 1	KI 2	General Skill 4
3	1	3	S 2.1, S 2.3		General Skill 3
	2	4	S 2.1, S 2.3		General Skill 3
	3	4			General Skill 3
	4	1	S 1.2, S 2.3, S 3.2	KI 2	
	5	2	S 1.3, S 3.2, S 3.3		
	6	2	S 1.3, S 3.2	KI 5	General Skill 8
	7	2	S 3.2		General Skill 8