THE UNIVERSITY OF THE STATE OF NEW YORK

GRADE 8

INTERMEDIATE-LEVEL SCIENCE TEST

JUNE 2015 WRITTEN TEST

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 chart that translates final scores into four performance levels. A conversion chart is needed to translate a student's raw score on the written and performance tests to a final score. This chart will be posted on the Department's web site http://www.p12.nysed.gov/assessment/ through the "Scoring Information" link. Conversion charts provided for previous administrations of this test must not be used to determine student's final scores for the 2015 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 website http://www.p12.nysed.gov/assessment/ during the rating period. Check the "Scoring Information" link at this website 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) 474-5900.

Note: Retain this guide for future use. Do *not* return it to SED with the performance test materials.

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 scoring criteria before beginning to score the student responses. Refer to the 2015 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 test 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 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. 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.

7. 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.

8. Students should *not* lose credit for incorrect spelling, grammar, capitalization, or punctuation.

9. In responses to questions where 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 answers, score only the required number, in the order in which they appear.

10. 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.

11. 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.

12. 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.

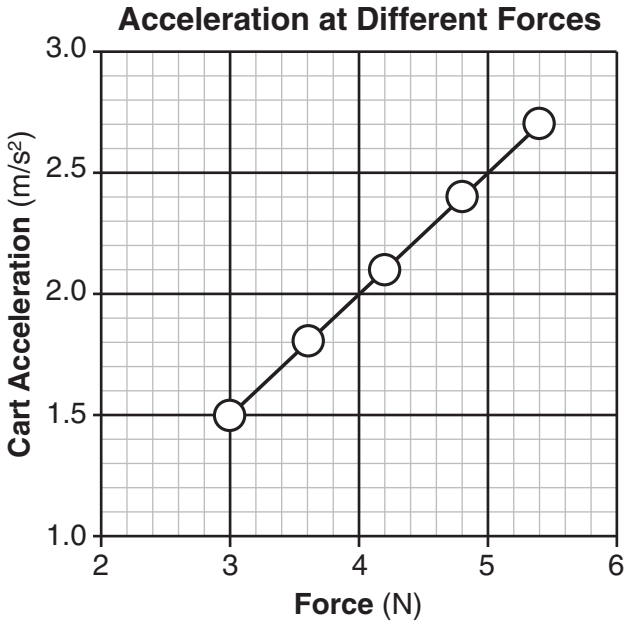
Online Submission of Teacher Evaluations of the Test to the Department

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 http://www.p12.nysed.gov/assessment/teacher/evaluation.html.
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 for 2 kg *or* 2.0 kg.

47 [1] Allow 1 credit if the centers of *all five* **X**s are within the circles shown and are correctly connected with a line that passes within the circles.



Note: Allow credit if a symbol other than an **X** is used.
It is recommended that an overlay of the same scale as the student test booklet be used to ensure reliability when rating.
Allow credit if the student extends the line correctly beyond the plotted points in either direction.

48 [1] Allow 1 credit for 1 m/s^2 *or* 1.0 m/s^2 *or* an acceptable response based on the student's graph.

49 [1] Allow 1 credit if *both* responses are acceptable. Acceptable responses include, but are not limited to:

Broom

— sweep up broken glass

Paper Towels

— wipe up spills right away

— limit spread of disease

Goggles

— protect students' eyes during an experiment

Aprons

— protect students' clothing from chemical spills

Sink

— wash hands after touching chemicals

Dustpan

— pick up broken glass without getting cut

50 [1] Allow 1 credit if *all six* values are recorded as shown in the table below.

Data Table

Trial	Heart Rate Before Exercise (beats per minute)	Heart Rate After Exercise (beats per minute)
1	72	124
2	76	134
3	82	146

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

— If a person exercises, then the heart rate will increase.

— The heart rate will decrease when the student stops exercising.

— This is a direct relationship.

52 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— take the pulse rate

— use a heart monitor

— find your pulse and count

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

— pitch

— how high or low the pitch was

— sound

54 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— All of the test tubes may not have been the same size, diameter, length, etc.

— One or more of the students ranking the pitches might have had trouble telling high pitches from low pitches.

— The length of the air column in the test tube was not measured correctly.

— How hard students blow may not be consistent.

— The length of the air column was not consistent/standardized.

55 [1] Allow 1 credit for a value from 83 g to 87 g.

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

— the Sun
— sunlight
— light from the Sun
— insolation/incoming solar radiation

57 [1] Allow 1 credit for condensation.

58 [1] Allow 1 credit for runoff.

59 [1] Allow 1 credit for 100%.

60 [1] Allow 1 credit for a correctly completed Punnett square.

Example of a 1-credit response:

	R	*r*
R	*RR*	*Rr*
r	*Rr*	*rr*

Note: Allow credit if a student writes either *Rr* or *rR*.

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

— There are four different stages of development during complete metamorphosis.
— During complete metamorphosis, the caterpillar does not look like its parent.
— There is a larva/pupa stage during complete metamorphosis.
— During incomplete metamorphosis, the nymph/young grasshopper looks like its parent.

62 [2] Allow 2 credits, 1 credit for an acceptable response in *each* unshaded row. Acceptable responses include, but are not limited to:

Label	Structure	One Function of the Structure
A	stem	supports the plant
B	— leaf — leaves	— site of photosynthesis — absorbs sunlight — makes sugar/food — releases water — absorbs/releases CO_2 — releases/absorbs oxygen — stores water
C	— root — roots	— absorb water — absorb nutrients from the soil — anchor the plant in the soil — store water/nutrients/food — gas exchange

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

Letter	Description of Cell Structure	Name of Cell Structure
A	thread-like structure found in the nucleus that contains many units of hereditary information	chromosome
B	a single unit of hereditary information	— gene(s) — allele
C	double-stranded molecule composed of genetic material	— DNA — deoxyribonucleic acid

64 [1] Allow 1 credit if "External" is circled *and* an acceptable response is given. Acceptable responses include, but are not limited to:

— The babies are developing in the eggs while the mother is sitting on them.

— They lay eggs.

— The bird is sitting on the eggs to keep them warm.

— The eggs are outside of the mother's body.

65 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— There is only one parent involved.

— The offspring look identical to the parent.

— Sex cells do not produce the offspring.

— no fertilization occurred

Unacceptable responses include those that only refer to a method of asexual reproduction used by one of the organisms, for example: They are all budding.

66 [1] Allow 1 credit for 32 chromosomes.

67 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The trilobites are located in the bottom layer.

— They are located in the layer that formed first.

68 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— inability to adapt to sudden changes in the environment

— overhunting

— competition

— habitat destruction

— disease

— lack of resources/food/water

— meteor/asteroid impact

— climate change

— increase in the number of predators

— volcanic eruption

— the Ice Age

— drought

69 [1] Allow 1 credit for grasses *or* tree(s).

70 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— less food for the frogs

— because frogs eat crickets

— Snakes would eat more frogs if there were fewer crickets.

71 [1] Allow 1 credit for *two* acceptable responses. Acceptable responses include, but are not limited to:

— asteroids/asteroid belt

— comets

— meteors

— moons

— dwarf planets

— Pluto

— satellites

Unacceptable responses include:

stars (Other than the Sun, stars are not part of our solar system.)

Milky Way (This is a galaxy. Galaxies are not part of our solar system.)

72 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Uranus is farther from the Sun.

— The gravitational attraction between the Sun and Mars is greater.

— Uranus has a longer orbit than Mars.

— Mars moves faster in its orbit than Uranus.

— Mars is closer to the Sun.

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

— because of Earth's tilt

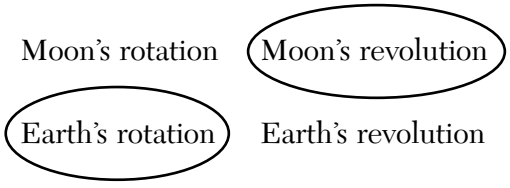
— The Sun is higher in the sky in June than in December.

— The North Pole is tilted toward the Sun in June and away from the Sun in December.

— The northern hemisphere receives more direct Sun rays in June.

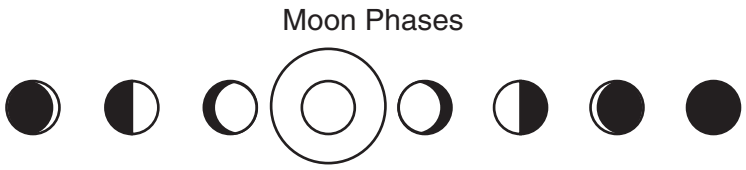
74 [1] Allow 1 credit if *both* circled responses are correct as shown below.

Example of a 1-credit response:



75 [1] Allow 1 credit for a circle around the full moon phase.

Example of a 1-credit response:



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

— The Moon shines by reflected sunlight.
— Sunlight is reflected off the Moon.
— It reflects light.
— It is visible in the sky because sunlight shines on it.

77 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— 1 month
— Any value from 28–31 days.
— 4 weeks

Note: Students' answers must include units.

78 [1] Allow 1 credit for 3 miles.

79 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Light travels faster than sound.
— Sound travels more slowly than light.
— Light is faster than sound.
— Thunder and lightning travel at different speeds.

80 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Go inside a building or car.
— Avoid bodies of water.
— Stay away from tall trees.
— Crouch down on the ground.
— Stay away from metal objects.
— Stay away from windows.

81 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— precipitation
— clouds/fog
— unstable/stormy weather
— windy conditions
— high humidity
— thunderstorms
— changes in air pressure

Unacceptable responses include: hurricanes. (Hurricanes are not associated with frontal boundaries.)

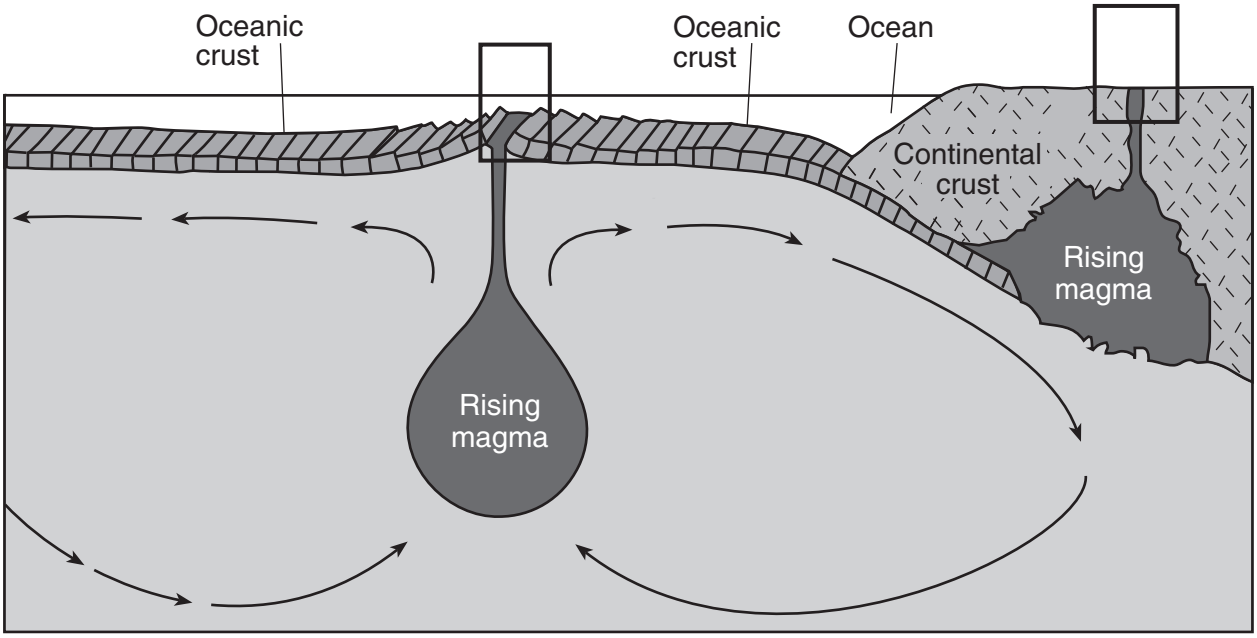
82 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The wood did not displace its full volume in water.
— The wood floats so not enough water is displaced.
— The wood was not completely under the water.
— The wood does not sink.
— The wood floats.
— It is not dense enough to sink.

Unacceptable responses include references to mass or weight, for example: the wood is lighter than the water.

83 [1] Allow 1 credit if the center of the **X** appears inside either of the boxed areas shown below.

Cross Section of Earth's Interior



(Not drawn to scale)

Note: Allow credit if a symbol other than an **X** is used.

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

— convection

— convection currents

— convection cells

Appendix A

New York State Grade 8 Intermediate-Level Science Test
June 2015

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 (levels 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 http://www.p12.nysed.gov/assessment/ through the "Scoring Information" link.

Note: Conversion charts provided for previous administrations of this test must not be used to determine students' final scores for the 2015 administration.

Performance Levels
Grade 8 Intermediate-Level Science Test

Level	Final Test Score Range	Description of Student Performance
4	85–100	**Meeting the Standards with Distinction** • 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	**Meeting the Standards** • 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	**Not Fully Meeting the Standards** • 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	**Not Meeting the Standards** • Student is *unable* to demonstrate understanding of the intermediate-level science content and concepts in most of the learning standards and key ideas assessed. • Student is *unable* to demonstrate the science skills required for intermediate-level achievement in most of the learning standards and key ideas assessed. • Student is *unable* 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 2015 Written Test
Performance Test Form A

Item maps contained in this appendix:

- Reference to *Intermediate-Level Science Core Curriculum Grades 5–8* — June 2015 Written Test and Performance Test, Form A
- Reference to Process Skills Based on Standard 4 — June 2015 Written Test and Performance Test, Form A
- Reference to Core Curriculum for Individual Test Questions — June 2015 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.*

NYS Learning Standards for Mathematics, Science, and Technology Standard/Area	*Reference to Intermediate-Level Science Core Curriculum* Key Idea or Performance Indicator	Performance Test Form A Question Number			June 2015 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.	**S1.1** Formulate questions independently with the aid of references appropriate for guiding the search for explanations of everyday observations.	2 3			
	S1.2 Construct explanations independently for natural phenomena, especially by proposing preliminary visual models of phenomena.		8	4	45, 82
	S1.3 Represent, present, and defend their proposed explanations of everyday observations so that they can be understood and assessed by others.		7 8	5 6	
	S1.4 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.	**S2.1** 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	49
	S2.2 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			
	S2.3 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.	**S3.1** 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		47, 50
	S3.2 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	43, 44, 48, 51, 54
	S3.3 Modify their personal understanding of phenomena based on evaluation of their hypothesis.			5	
Standard 1 Mathematical Analysis	**M1** Abstraction and symbolic representation are used to communicate mathematically.		3 8		46, 53, 78
	M2 Deductive and inductive reasoning are used to reach mathematical conclusions.		4, 5, 6, 7		55
	M3 Critical thinking skills are used in the solution of mathematical problems.				

NYS Learning Standards for Mathematics, Science, and Technology Standard/Area	*Reference to Intermediate-Level Science Core Curriculum* Key Idea or Performance Indicator	Performance Test Form A Question Number			June 2015 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.				23, 24, 25, 71, 72, 73, 74, 75, 76, 77
	2 Many of the phenomena that we observe on Earth involve interactions among components of air, water, and land.				26, 27, 36, 37, 58, 80, 81, 83, 84
	3 Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.				28, 29, 30, 38, 39, 57
	4 Energy exists in many forms, and when these forms change energy is conserved.				31, 32, 33, 34, 35, 40, 56, 79
	5 Energy and matter interact through forces that result in changes in motion.				41, 42
Standard 4 Living Environment	**1** Living things are both similar to and different from each other and from nonliving things.				1, 2, 3, 4, 6, 10, 16, 52, 62
	2 Organisms inherit genetic information in a variety of ways that result in continuity of structure and function between parents and offspring.				11, 63, 65, 66
	3 Individual organisms and species change over time.				7, 8, 67, 68
	4 The continuity of life is sustained through reproduction and development.				5, 9, 13, 14, 64
	5 Organisms maintain a dynamic equilibrium that sustains life.				15, 18, 19, 69
	6 Plants and animals depend on each other and their physical environment.				70
	7 Human decisions and activities have had a profound impact on the physical and living environment.				17, 20, 21, 22

NYS Learning Standards for Mathematics, Science, and Technology Standard/Area	*Reference to Intermediate-Level Science Core Curriculum* Key Idea or Performance Indicator	Performance Test Form A Question Number			June 2015 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	12, 59, 60, 61
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 Students will apply the knowledge and thinking skills of mathematics, science, and technology to address real-life problems and make informed decisions.	**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 *Intermediate-Level Science Core Curriculum Grades 5–8)*	Performance Test Form A Question Number			June 2015 Written Test Question Number
		Station 1	Station 2	Station 3	
General Skills	1 Follow safety procedures in the classroom and laboratory				49
	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		43, 51
	5 Classify objects according to an established scheme and a student-generated scheme				
	6 Develop and use a dichotomous key	1–5, 9			
	7 Sequence events				79
	8 Identify cause-and-effect relationships		4, 5, 6	6, 7	35, 51, 68, 73
	9 Use indicators and interpret results				
Living Environment Skills	1 Manipulate a compound microscope to view microscopic objects	6, 8			
	2 Determine the size of a microscopic object, using a compound microscope	7			
	3 Prepare a wet mount slide				
	4. Use appropriate staining techniques				
	5 Design and use a Punnett square or a pedigree chart to predict the probability of certain traits				12, 59, 60
	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				69, 70
	8 Identify pulse points and pulse rates				52
	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				36
	3 Use a diagram of the rock cycle to determine geological processes that led to the formation of a specific rock type				
	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				
	9 Measure weather variables such as wind speed and direction, relative humidity, barometric pressure, etc.				
	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				82
	12 Using the periodic table, identify an element as a metal, nonmetal, or noble gas				
	13 Determine the identity of an unknown element, using physical and chemical properties				
	14 Using appropriate resources, separate the parts of a mixture				
	15 Determine the electrical conductivity of a material, using a simple circuit				
	16 Determine the speed and acceleration of a moving object				

Grade 8 Intermediate-Level Science
Reference to Core Curriculum for Individual Test Questions on Written Test — June 2015

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	1.1e		
2	4	LE	1.1c		
3	4	LE	1.1h		
4	4	LE	1.2a	1.2c, 1.2f, St 6 KI 2.2	
5	4	LE	4.4a		
6	4	LE	1.2h		
7	4	LE	3.1a	2.1e, St 6 KI 2.2	
8	4	LE	3.1c		
9	4	LE	4.3e		
10	4	LE	1.1d	St 6 KI 2.2	
11	4	LE	2.2c	St 6 KI 2.2	
12	6	-	KI 2.2	LE 2.2c	LE5
13	4	LE	4.2a	St 6 KI 2.2	
14	4	LE	4.3a	St 6 KI 2.2	
15	4	LE	5.1a	5.1b	
16	4	LE	1.2c		
17	4	LE	7.1c	St 6 KI 2.2	
18	4	LE	5.1e	St 6 KI 2.2	
19	4	LE	5.1e		
20	4	LE	7.1a		
21	4	LE	7.1b		
22	4	LE	7.2d		
23	4	PS	1.1f	1.1h, St 6 KI 2.2	
24	4	PS	1.1h		
25	4	PS	1.1e		
26	4	PS	2.1d		
27	4	PS	2.2d	2.2e, St 6 KI 2.2	
28	4	PS	3 intro	3.3f	
29	4	PS	3.2a		
30	4	PS	3.3g	3.2d	
31	4	PS	4.4c		
32	4	PS	4.1c	4.1d	
33	4	PS	4.2b		
34	4	PS	4.1b		
35	4	PS	4.4g		GS 8
36	4	PS	2.1e	3.2c, St 6 KI 2.2	PS 2
37	4	PS	2.1h	2.1g, 4.2d, St 6 KI 2.2	
38	4	PS	3.1c	3.1d-f, St 6 KI 2.2	
39	4	PS	3.3f	3.3c, St 6 KI 2.2	
40	4	PS	4.4b	St 6 KI 2.2	
41	4	PS	5.1c	5.1d, St 6 KI 2.2	
42	4	PS	5.2f	5.2g, St 1 M 2.1b, St 6 KI 2.2	

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	1	-	S 3.2h	M 2.1b, LE 6.2a	GS 4
44	1	-	S 3.2h	PS 1.1a, St 6 KI 2.2	
45	1	-	S 1.2c	PS 3.1i	
46	1	-	M 1.1c	PS 5.1d, St 6 KI 2.2	
47	1	-	S 3.1	PS 5.1d	
48	1	-	S 3.2h	M 2.1a, PS 5.1d	
49	1	-	S 2.1a		GS 1
50	1	-	S 3.1a	M 2.1a, LE 1.2f	
51	1	-	S 3.2h	M 1.1b, LE 1.2f	GS 4, GS 8
52	4	LE	1.2f		LE 8
53	1	-	M 1.1a	S 2.2d, PS 4.4c	
54	1	-	S 3.2b	PS 4.4c	
55	1	-	M 2.1a	PS 3.1b	
56	4	PS	4.1a	2.1j, St 6 KI 2.2	
57	4	PS	3.2a	St 6 KI 2.2	
58	4	PS	2.1j	St 6 KI 2.2	
59	6	-	KI 2.2	LE 2.2c, St 1 KI 3.2h	LE 5
60	6	-	KI 2.2	LE 2.2c	LE 5
61	6	-	KI 2.2	LE 4.3d	
62	4	LE	1.1f	St 6 KI 2.2	
63	4	LE	2.1a	St 6 KI 2.2	
64	4	LE	4.1d	St 6 KI 2.2	
65	4	LE	2.1d	4.1b, St 6 KI 2.2	
66	4	LE	2.1d	4.1b, St 6 KI 2.2	
67	4	LE	3.2c	St 6 KI 2.2	
68	4	LE	3.2b	7.1b	GS 8
69	4	LE	5.1d	6.1b, St 6 KI 2.2	LE 7
70	4	LE	6.1b	St 6 KI 2.2	LE 7
71	4	PS	1.1c	St 6 KI 2.2	
72	4	PS	1.1c	St 6 KI 2.2	
73	4	PS	1.1i	St 6 KI 2.2	GS 8
74	4	PS	1.1e	1.1g, St 6 KI 2.2	
75	4	PS	1.1g	St 6 KI 2.2	
76	4	PS	1.1g	St 6 KI 2.2	
77	4	PS	1.1g	St 6 KI 2.2	
78	1	-	M 1.1c	PS 4.4c, St 6 KI 2.2	
79	4	PS	4.4c	St 1 S 1.2, St 6 KI 2.2	GS 7
80	4	PS	2.2q	St 7 KI 1.1	
81	4	PS	2.2o	St 6 KI 2.2	
82	1	-	S 1.2	St 6 KI 2.2	PS 11
83	4	PS	2.2a	2.2f, St 6 KI 2.2	
84	4	PS	2.2e	4.2b, St 6 KI 2.2	

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