THE UNIVERSITY OF THE STATE OF NEW YORK

GRADE 8

INTERMEDIATE-LEVEL SCIENCE TEST

JUNE 2014 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 2014 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: Beginning in the 2012-2013 school year, teachers are no longer 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 2014 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 *two* acceptable responses: April (Apr) *and* October (Oct).

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

— thermometer

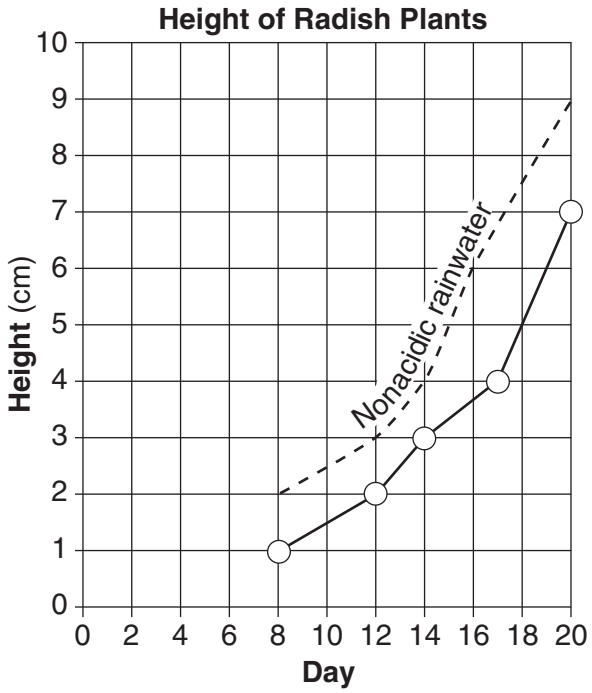
— temperature gauge

— temperature probe

— thermograph

48 [1] Allow 1 credit if the centers of *all five* **X**s are plotted within the circles shown on the graph below and are correctly connected with a line that passes within the circles.

Example of a 1-credit response:



Note: Allow credit if the student uses a symbol other than an **X** to plot the points.
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. Acceptable responses include, but are not limited to:

— The radish plant watered with *nonacidic* rainwater grew taller than the one watered with acidic rainwater.

— The plant watered with acidic rainwater is shorter than the other plant.

— The graph line of the plant watered with acidic rainwater is positioned lower on the grid than the graph line of the plant watered with *nonacidic* rainwater.

— After 20 days, the plant watered with acidic rainwater is 7 cm tall and the plant watered with *nonacidic* rainwater is 9 cm tall.

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

— They could include more seeds/plants.

— Collect data for a longer period of time.

— Collect data at regular intervals.

— Collect data every two days.

Unacceptable responses include:

Use a different plant. (This would be a different experiment, not a design improvement. The hypothesis is testing the response of radish plants.)

51 [1] Allow 1 credit for 7%.

52 [1] Allow 1 credit for 120 Calories.

53 [1] Allow 1 credit for 640 ft.

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

— The contour lines are closer together.

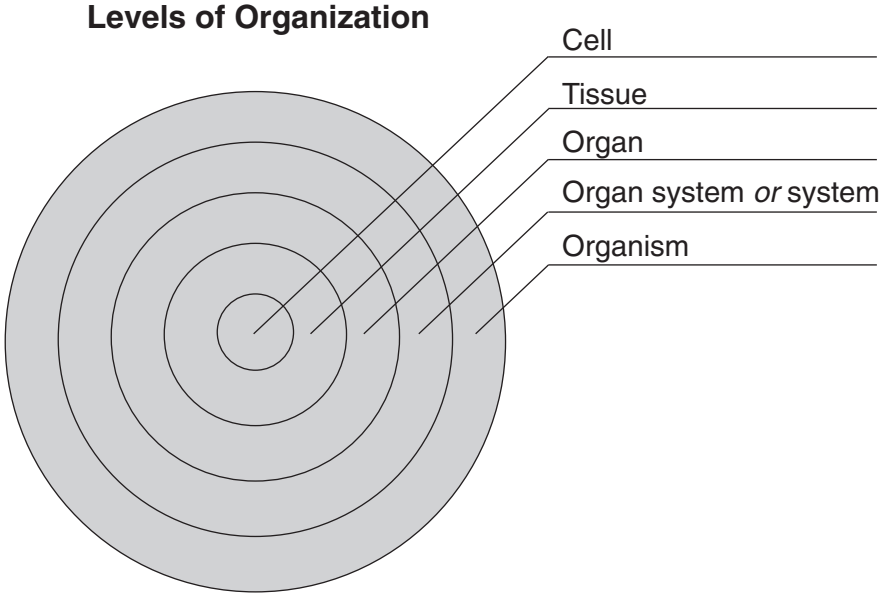
— The elevation changes more in a given distance.

55 [1] Allow 1 credit for the Punnett square shown below.

	G	*g*
G	*GG*	*Gg*
g	*Gg*	*gg*

Note: *gG* is acceptable for *Gg*.

56 [1] Allow 1 credit if *all three* labels are correctly placed in the blank spaces in the diagram, as shown below.



57 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— There is only one parent.

— There was no fertilization.

— Neither sperm nor egg is needed to complete asexual reproduction.

— The offspring is genetically identical to the parent.

— All the genes come from one parent.

58 [1] Allow 1 credit for kingdom *or* monera.

59 [1] Allow 1 credit for *two* acceptable responses: (domestic) dog *and* (wolf) spider.

60 [1] Allow 1 credit. Acceptable responses include:

— white button mushroom *or* mushroom *or* any level of classification in the white button mushroom column

— *E. coli* bacteria *or* bacteria *or* any level of classification in the *E. coli* bacteria column

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

— The food is broken into smaller pieces.

— Food is squeezed.

— It is dissolved.

— It is chewed.

62 [1] Allow 1 credit for circling a human body system *and* an acceptable response. Acceptable responses include, but are not limited to:

Human Body System	Description
circulatory system	— carries nutrients from the digestive system to the body cells — brings oxygen to the cells of the digestive system
skeletal system	— supports the organs of the digestive system — protects some organs of the digestive system — helps the person chew food

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

— Younger layers are on top of older layers.

— Layer *A* is the top layer.

— Part of layer *B* was eroded before *A* was deposited.

— The fossil found in *A* is younger.

— It is the top layer.

64 [1] Allow 1 credit for circling sedimentary *and* an acceptable response. Acceptable responses include, but are not limited to:

— They contain fossils.

— Sedimentary rocks are always layered.

— Fossils are found mainly in sedimentary rock.

— The symbols in the diagram represent sedimentary rocks.

Note: Allow credit if the student does *not* circle any rock type, but gives an acceptable response that includes the term "sedimentary rock."

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

— sperm

— male gamete

66 [1] Allow 1 credit for 44 *or* twice as many.

67 [1] Allow 1 credit for an acceptable response in *all three* rows of the chart, as shown below.

Type of Organism	Example in Food Web
carnivore	snakes *or* owls
herbivore	mice *or* rabbits
producer	wheat plants *or* grasses

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

— because the snakes and owls would eat more rabbits

— The snakes would need to eat more rabbits if the mice are gone.

— The owls would eat more rabbits.

69 [1] Allow 1 credit for CO_2 *or* carbon dioxide.

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

— groundwater pollution due to the landfill

— dumping garbage in the landfill

— traffic from the highway

— habitat destruction due to the nearby housing development/mall

— the land development for the mall

— More people visit the nature preserve.

— noise from cars and houses

— air pollution from car exhaust

Unacceptable responses include simply identifying a feature from the diagram, such as "landfill" or "housing development," without a description.

71 [1] Allow 1 credit for red.

72 [1] Allow 1 credit for *two* acceptable responses: visible light *and* radio waves.

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

— As the ozone is depleted, more ultraviolet rays get through.

— As the ozone decreases, more harmful UV rays will get through the atmosphere.

— More ultraviolet rays reach Earth's surface.

— The ozone layer absorbs less ultraviolet light.

— More harmful rays are getting through.

Unacceptable responses include: Ultraviolet light is partially absorbed by the ozone. (This comes from a label in the diagram. It does *not* indicate ozone depletion.)

74 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— 365 days

— 1 year

— $365\ \frac{1}{4}$ days

— twelve months

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

— The student could filter the sand out of the sugar-water solution.
— Carefully pour the sugar-water out of the beaker.
— Use a filter.
— Scoop out the sand.
— Decant the liquid.

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

— Heat the solution to make the water evaporate.
— Evaporate the water.
— Boil it.
— Heat it.

77 [1] Allow 1 credit for an acceptable response in *all three* rows. Acceptable responses include, but are not limited to:

Event	Phase Change
Water droplets formed on the outside of the glass in diagram A.	— condensation — gas to liquid
Ice is no longer visible in diagram B.	— melting — solid to liquid
The level of water in the glass dropped in diagram B.	— vaporization — evaporation — liquid to gas

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

— Ice is less dense than water.
— Ice is less dense.
— It is less dense.
— Liquid water has a greater density than ice.
— Ice is lighter than an equal volume of water.
— Water expands when it freezes.
— Ice is buoyant in water.

Unacceptable responses include:

Ice is lighter than water. (This is not specific enough.)
because of density (Must specify what is more or less dense.)

79 [1] Allow 1 credit for gravity *or* weight.

Unacceptable responses include: mass, rock

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

— The molecules moved farther apart.

— The molecules in the metal moved faster.

— The molecules gained energy and spread apart.

— The metal expanded.

— The heat caused the rod to expand.

Note: Do *not* allow credit for "The molecules expanded," or "The atoms expanded." (The size of the molecules/atoms does not change.)

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

— Opposites attract.

— Like poles repel.

— The north pole of the magnet attracts the south end of the compass.

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

— Compass 1 is closer to the pole of the bar magnet.

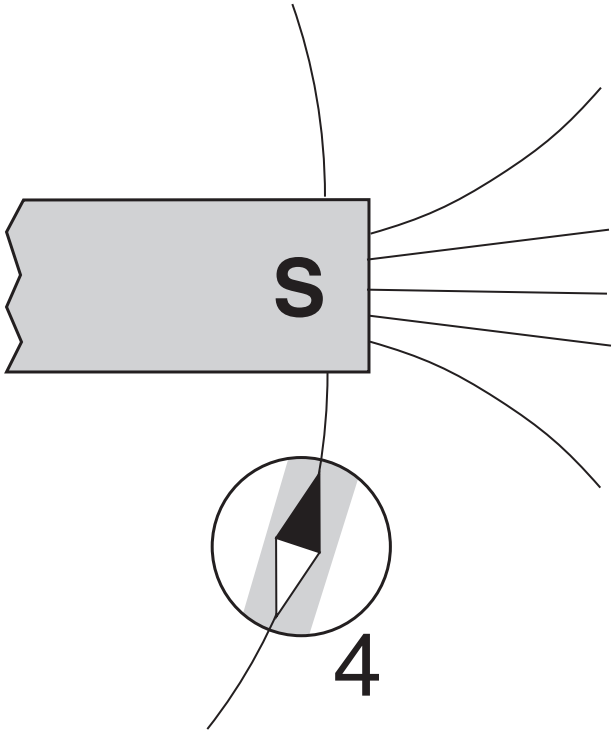
— Compass 1 is near the end of the magnet and compass 3 is near the middle of the magnet.

— Magnetic force decreases as distance from the magnet increases.

— Magnetic force increases as distance from the magnet decreases.

83 [1] Allow 1 credit if the pointed ends of the needle are drawn within the shaded area shown below, with the north end of the needle toward the south pole of the magnet.

Example of a 1-credit response:



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

— northwest
— NW/WN
— NNW
— WNW
— from SE toward NW

Unacceptable responses include "north" and "west."

85 [1] Allow 1 credit for *two* acceptable responses: 25° N *and* 72° W.

Appendix A

New York State Grade 8 Intermediate-Level Science Test
June 2014

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 New York State Education Department web site 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 2014 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 2014 Written Test
Performance Test Form A

Item maps contained in this appendix:

- Reference to *Intermediate-Level Science Core Curriculum Grades 5–8* — June 2014 Written Test and Performance Test, Form A
- Reference to Process Skills Based on Standard 4 — June 2014 Written Test and Performance Test, Form A
- Reference to Core Curriculum for Individual Test Questions — June 2014 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 2014 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	80
	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	
	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			50
	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		48
	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	16, 33, 34, 35, 43, 44, 45, 46, 49, 50, 51, 58, 59, 60, 81, 82, 83
	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		20, 34, 43
	M2 Deductive and inductive reasoning are used to reach mathematical conclusions.		4, 5, 6, 7		44, 84
	M3 Critical thinking skills are used in the solution of mathematical problems.				45, 47, 51, 52, 53

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 2014 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.				83
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.				28, 44, 74, 85
	2 Many of the phenomena that we observe on Earth involve interactions among components of air, water, and land.				23, 24, 27, 33, 35, 39, 46, 64
	3 Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.				20, 22, 26, 30, 31, 32, 34, 38, 45, 47, 75, 76, 77, 78, 80
	4 Energy exists in many forms, and when these forms change energy is conserved.				21, 22, 25, 29, 40, 45, 71, 72, 77, 78, 80, 81, 82, 83
	5 Energy and matter interact through forces that result in changes in motion.				36, 37, 41, 42, 79, 84
Standard 4 Living Environment	**1** Living things are both similar to and different from each other and from nonliving things.				1, 2, 4, 5, 7, 12, 48, 56, 58, 59, 61, 62, 69
	2 Organisms inherit genetic information in a variety of ways that result in continuity of structure and function between parents and offspring.				8, 19, 55, 57
	3 Individual organisms and species change over time.				9, 13, 63, 64
	4 The continuity of life is sustained through reproduction and development.				6, 11, 12, 14, 18, 65, 66
	5 Organisms maintain a dynamic equilibrium that sustains life.				10, 15, 51, 52, 60, 67
	6 Plants and animals depend on each other and their physical environment.				60, 68, 69
	7 Human decisions and activities have had a profound impact on the physical and living environment.				3, 16, 17, 43, 49, 70, 73

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 2014 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.				56, 62
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	1, 8, 13, 14, 15, 17, 26, 28, 29, 30, 31, 32, 36, 37, 53, 54, 55, 56, 57, 61, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 74, 77, 78, 79, 80, 81, 82, 84, 85
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	85
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 2014 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		47
	3 Use appropriate units for measured or calculated values			1, 2, 3	
	4 Recognize and analyze patterns and trends		7, 8		43, 49, 64
	5 Classify objects according to an established scheme and a student-generated scheme				56, 59
	6 Develop and use a dichotomous key	1–5, 9			
	7 Sequence events				
	8 Identify cause-and-effect relationships		4, 5, 6	6, 7	68, 73, 78
	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				55
	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				67, 68
	8 Identify pulse points and pulse rates				
	9 Identify structure and function relationships in organisms				1, 2, 7, 12
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				85
	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				
	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				81, 82, 83
	6 Measure the angular elevation of an object, using appropriate instruments				
	7 Generate and interpret field maps including topographic and weather maps				53, 54, 84
	8 Predict the characteristics of an air mass based on the origin of the air mass				24
	9 Measure weather variables such as wind speed and direction, relative humidity, barometric pressure, etc.				47
	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				30, 31, 32
	13 Determine the identity of an unknown element, using physical and chemical properties				
	14 Using appropriate resources, separate the parts of a mixture				75, 76
	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 2014

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

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 1.1b; LE 7.1b	GS 4
44	1	-	M 2.1b	M 2.1a, S 3.2h; PS 1.1g, 1.1h	
45	1	-	S 3.2h	M 3.1a; PS 4.2e, 3.1b	
46	1	-	S 3.2h	PS 2.2j	
47	1	-	M 3.1a	PS 3.1a	GS 2, PS 9
48	1	-	S 3.1a	LE 1	
49	1	-	S 3.2c	LE 7.1e, 7.2d	GS 4
50	1	-	S 3.2g	S 2.2e	
51	1	-	S 3.2h	M 3.1; LE 5.2b	
52	1	-	M 3.1	LE 5.2d	
53	6	-	2.2	PS; St 1 M 3.1a	PS 7
54	6	-	2.2	PS	PS 7
55	6	-	2.2	LE 2.2c	LE 5
56	4	LE	1.1e	1.1g; St 6 KI 1; St 6 KI 2.2	GS 5
57	4	LE	2.1d	St 6 KI 2.2	
58	4	LE	1.1h	St 1 S 3.2h	
59	4	LE	1.1h	St 1 S 3.2h	GS 5
60	4	LE	5.1e	6.1a; St 1 S 3.2h	
61	4	LE	1.2c	St 6 KI 2.2	
62	4	LE	1.2a	St 6 KI 1.4	
63	4	LE	3.2c	St 6 KI 2.2	
64	4	PS	2.1f	LE 3.2c; St 6 KI 2.2	GS 4
65	4	LE	4.2a	St 6 KI 2.2	
66	4	LE	4.2b	St 6 KI 2.2	
67	4	LE	5.1e	St 6 KI 2.2	LE 7
68	4	LE	6.1b	St 6 KI 2.2	LE 7, GS 8
69	4	LE	6.1c	6.2b, 1.2d; St 6 KI 2.2	
70	4	LE	7.2c	St 6 KI 2.2	
71	4	PS	4.4a	St 6 KI 2.2	
72	6	-	KI 2.2	PS 4.4a; 4.4b	
73	4	LE	7.2d		GS 8
74	4	PS	1.1h	St 6 KI 2.2	
75	4	PS	3.1g		PS 14
76	4	PS	3.1g		PS 14
77	4	PS	4.2c	3.2a; St 6 KI 2.2	
78	4	PS	4.2d	3.1i; St 6 KI 2.2	GS 8
79	4	PS	5.2a	St 6 KI 2.2	
80	4	PS	4.2d	3.3b; St 6 KI 2.2; S 1.2	
81	4	PS	4.4g	St 6 KI 2.2; St 1 S 3.2d	PS 5
82	4	PS	4.4g	St 6 KI 2.2; St 1 S 3.2d	PS 5
83	4	PS	4.4g	T 1.4a; St 1 S 3.2d	PS 5
84	4	PS	5.1b	St 6 KI 2.2; St 1 M 2.1b	PS 7
85	4	PS	1.1f	St 6 KI 2.2, St 6 KI 5	PS 1

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