THE UNIVERSITY OF THE STATE OF NEW YORK

GRADE 8

INTERMEDIATE-LEVEL SCIENCE TEST

SPRING 2009 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.emsc.nysed.gov/osa/. Conversion charts provided for previous administrations of this test must *not* be used to determine student's final scores for the 2009 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.emsc.nysed.gov/osa/ at the end of the test administration period. Check 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 or the Office of Curriculum, Instruction, and Instructional Technology at (518) 474-5922.

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

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.

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. Look at the acceptable responses for each point value.

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. 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.

6. It is recommended that you score all the student responses to one question before proceeding to the next question. This method helps ensure that the scoring criteria are applied consistently.

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

8. 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.

9. 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.

10. 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.

11. The total raw score for Part II can be transferred to the student's scannable answer sheet. Check to be certain that the student name on the test booklet matches the name on the answer sheet.

12. Add the student's raw score for Part II to the raw score for Part I to determine the student's total raw score for the written test. Use the conversion chart to convert the written and performance test raw scores to a final score for the student. This chart will be provided on the Department's web site http://www.emsc.nysed.gov/osa/.

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 www.emsc.nysed.gov/osa/exameval.

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. Acceptable responses include, but are not limited to:

— A hard mineral cannot be scratched easily by other Earth materials.
— They can be used for tools.
— They can be cut and polished and used for gems.
— durability
— can be used for a long time

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

— color
— luster
— ability to reflect light
— crystal size
— crystal shape
— sparkle
— shiny
— clarity
— transparency

48 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The diamonds might scratch each other if not protected by the wrapping.
— Diamonds are very hard, so they can scratch each other.
— Diamonds may be chipped.
— The diamonds may be broken.

49 [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.

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

— Fossils from different time periods were found in different layers.
— because there are several different rock layers

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

— The plates collide.
— Plates slide by each other.
— plates move
— faulting
— separation of crustal plates

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

— volcano formation/volcanoes
— volcanic activity/eruption
— subduction
— rifting
— tsunami (seismic sea wave)
— mountain building/mountains
— trench formation/trenches
— landslides
— flooding
— faulting/folding

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

— precipitation
— rain
— cloudy skies
— unstable weather

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

— east
— northeast
— north northeast
— southeast

55 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Increased concentrations of carbon dioxide may lead to global warming.

— Increased amounts of CO_2 may affect weather and climate.

Unacceptable responses include:

destruction of the ozone layer (This problem is not due to increased concentration of CO_2.)

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

— reduce use of fossil fuels

— plant more trees

— drive less

— use other forms of energy (wind, geothermal, water, etc.)

— save the rain forest

— conserve energy

Unacceptable responses include:

don't pollute (This response not specific enough.)

recycling (This response not specific enough.)

57 [1] Allow 1 credit for a volume of 10 cm^3.

58 [2] Allow a maximum of 2 credits, 1 credit for each acceptable response. Acceptable responses include, but are not limited to:

— stir the contents of the beaker

— heat the contents of the beaker

— heat the water

— grind/crush the sugar cube

— shake the contents of the beaker

59 [1] Allow 1 credit for lake.

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

— cool the metal ball

— heat the metal ring

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

— the higher the temperature, the faster the motion

— direct relationship

— the lower the temperature, the slower the motion

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

— mechanical

— kinetic energy

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

— use a thicker/thinner rubber band

— turn the propeller more times

— change the mass/weight of the airplane

64 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Once the plant is mature, it can carry out photosynthesis.

— After it is mature, the plant can make its own food.

— The mature plant produces chlorophyll and makes its own food.

— When the plant matures, it will have leaves, allowing it to make food for itself through photosynthesis.

65 [1] Allow 1 credit for 4 *or* four.

66 [1] Allow 1 credit for 2 *or* two.

67 [1] Allow 1 credit for grass.

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

— Mice eat both plants and animals.

— Mice eat both grass and crickets.

69 [1] Allow 1 credit for crickets *or* mice.

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

— Test tube *A* is a control.

— Test tube *A* is used as a comparison for the other two tubes.

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

— Carbon dioxide from the student's breath dissolves in the water, making it slightly acidic.

— The student blows carbon dioxide into the water in the tube and it combines with the water.

— Carbon dioxide mixes with the water to form an acid.

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

— Acid rain can wear away the details of statues and monuments.

— Acid rain can cause weathering on the surfaces of statues.

— Acid rain can destroy monuments.

— Acid rain causes chemical weathering of limestone.

73 [1] Allow 1 credit for *two* acceptable responses: bird and shark.

74 [1] Allow 1 credit. All four cells must be correct to receive credit.

Examples of 1-credit responses:

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

	R	*r*
r	*rR*	*rr*
r	*rR*	*rr*

75 [1] Allow 1 credit for photosynthesis.

76 [1] Allow 1 credit. Acceptable responses include:

— Trees provide homes for wildlife.
— protect animals from predators
— lumber for homes or other buildings
— Some trees provide food for other living organisms.
— Trees are producers in many food chains.
— reduce erosion
— fuel source

Note: Do *not* allow credit for benefits that are listed in the introduction to the question (e.g., shade).

77 [1] Allow 1 credit for listing 1, 2, 5, 6, and 8 in any order.

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

— The rock contains fossil shells.

— Fossil shells are found in some sedimentary rocks.

— Shells are found in water and most sedimentary rocks form in a water environment.

— The rock probably formed in a water environment.

— If the rock is broken, it will probably contain more fossil shells.

— statement 6

— statement 4

— statement 7

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

— Average mass increases with age.

— As age increases in males, so does mass.

— direct relationship

80 [2] Allow a maximum of 2 credits, allocated as follows:

Allow 2 credits if the centers of all five **X**s are plotted within the circles shown on the grid below and correctly connected with a line that passes through the circles.

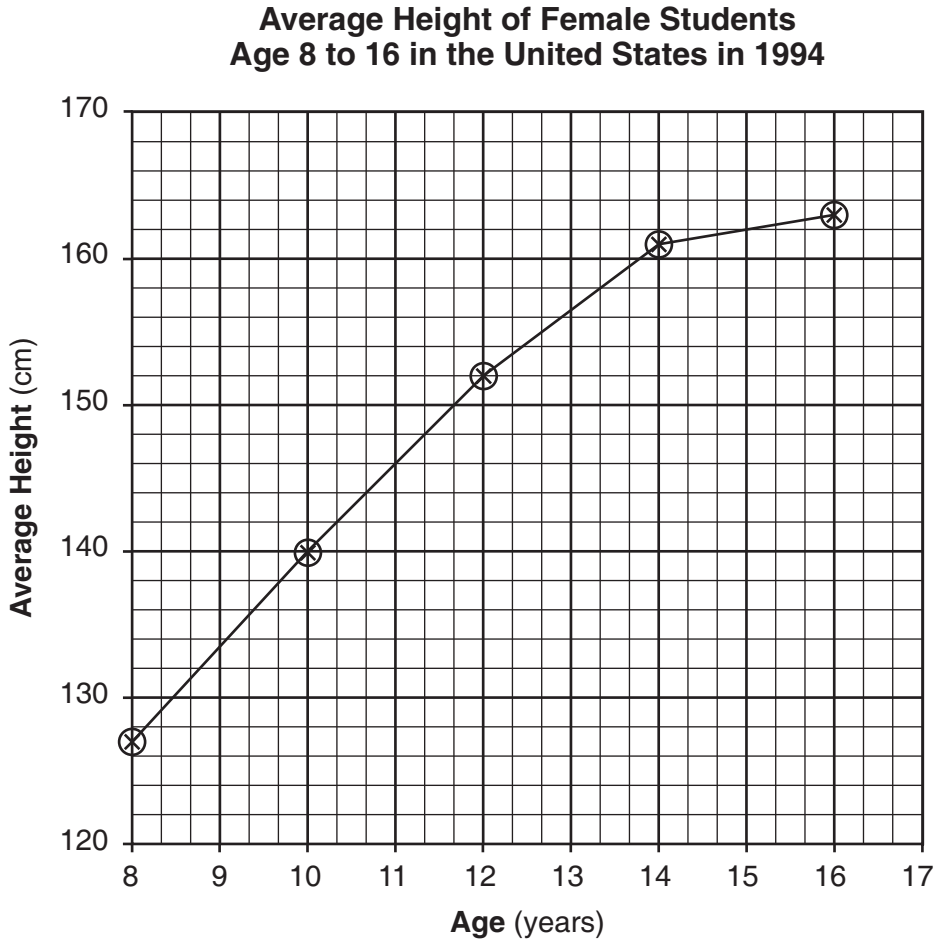
Allow 1 credit if the centers of only three or four **X**s are plotted within the circles shown on the grid below and correctly connected with a line that passes through the circles.

or

Allow 1 credit if the centers of all five **X**s are plotted within the circles shown on the grid below but are *not* correctly connected with a line.

Note: Allow credit if the student uses something other than an **X** to plot the points.

Example of a 2-credit response:



81 [1] Allow 1 credit for a value from 145 cm to 147 cm *or* a response that is consistent with the student's graph in question 80.

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

— type of paper towel used
— how much of the towel is in the water
— amount of water in the glass
— the temperature of the water
— size of the paper towel strips

Unacceptable responses include:

time (independent variable)

height of water on towel (dependent variable)

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

— Capillary action does occur in the paper towel.
— The longer the time, the higher the water rose.
— The water rises fastest when the towel is first placed in the water.

Appendix A

New York State Grade 8 Intermediate-Level Science Test
Spring 2009

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 http://www.emsc.nysed.gov/osa.

Note: Conversion charts provided for previous administrations of this test must *not* be used to determine students' final scores for the 2009 administration.

Performance Levels
Grade 8 Intermediate-Level Science Test

Level	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
Spring 2009 Written Test
Performance Test Form A

Item maps contained in this appendix:

- Reference to *Intermediate-Level Science Core Curriculum Grades 5-8* — Spring 2009 Written Test and Performance Test, Form A
- Reference to Process Skills Based on Standard 4 — Spring 2009 Written Test and Performance Test, Form A
- Reference to Core Curriculum for Individual Test Questions — Spring 2009 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**			**Spring 2009 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	42, 71, 77
	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	72
	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		46
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	77, 81
	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			70, 82
	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		80
	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	33, 44, 45, 55, 81, 83
	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		61, 79
	2 Deductive and inductive reasoning are used to reach mathematical conclusions.		4, 5, 6, 7		19, 43, 44
	3 Critical thinking skills are used in the solution of mathematical problems.				18

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**			**Spring 2009 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.				1, 2, 3
	2 Many of the phenomena that we observe on Earth involve interactions among components of air, water, and land.				4, 5, 12, 13, 14, 46, 48, 49, 50, 51, 52, 53, 54, 55, 59, 72, 78
	3 Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.				5, 6, 15, 16, 17, 47, 57, 58, 61
	4 Energy exists in many forms, and when these forms change energy is conserved.				7, 8, 9, 10, 60, 62
	5 Energy and matter interact through forces that result in changes in motion.				11, 18, 19, 63
Standard 4 Living Environment	**1** Living things are both similar to and different from each other and from nonliving things.				20, 21, 22, 23, 24, 25, 27, 32, 33, 39, 71, 73
	2 Organisms inherit genetic information in a variety of ways that result in continuity of structure and function between parents and offspring.				28, 65, 66, 74
	3 Individual organisms and species change over time.				26, 29, 36, 49, 50
	4 The continuity of life is sustained through reproduction and development.				30, 41, 43, 64
	5 Organisms maintain a dynamic equilibrium that sustains life.				31, 34, 35, 38, 44, 45, 68
	6 Plants and animals depend on each other and their physical environment.				64, 67, 69, 75
	7 Human decisions and activities have had a profound impact on the physical and living environment.				26, 37, 40, 41, 42, 56, 76

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			Spring 2009 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				51
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	8, 13, 14, 15, 16, 17, 30, 32, 36, 38, 40, 42, 43, 49, 50, 52, 53, 54, 57, 58, 59, 60, 62, 63, 64, 65, 66, 67, 68, 69, 74
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).				51
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	37, 79
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.				56
	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.				

Intermediate-Level Science Core Curriculum Grades 5-8
Process Skills Based On Standard 4

	Process Skills	Performance Test Form A Question Number			Spring 2009 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		79
	5. classify objects according to an established scheme and a student-generated scheme				73, 78
	6. develop and use a dichotomous key	1 – 5, 9			
	7. sequence events				
	8. identify cause-and-effect relationships		4, 5, 6	6, 7	48, 71, 75, 76
	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				65, 66, 74
	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, 69
	8. identify pulse points and pulse rates				
	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				47
	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				53, 54
	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				57
	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				18, 19

Grade 8 Intermediate-Level Science Reference to Core Curriculum for Individual Test Questions on Written Test—Spring 2009					
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	PS	1.1b		
2	4	PS	1.1h		
3	4	PS	1.1h		
4	4	PS	2.2q		
5	4	PS	3.2a	2.1j	
6	4	PS	3.3a		
7	4	PS	4.1c	4.1d	
8	4	PS	4.4g	St 6 KI 2.2	
9	4	PS	4.1b		
10	4	PS	4.4f		
11	4	PS	5.2a		
12	4	PS	2.2g	2.2h	
13	4	PS	2.2b	St 6 KI 2.2	
14	4	PS	2.2e	St 6 KI 2.2	
15	4	PS	3.1c	St 6 KI 2.2	
16	4	PS	3.2e	St 6 KI 2.2	
17	4	PS	3.2c	St 6 KI 2.2	
18	4	PS	5.1d	St 1 M 3.1	PS skill 16
19	4	PS	5.1b	St 1 M 2.1a	PS skill 16
20	4	LE	1.1a		
21	4	LE	1.1b	1.1f 1.1g	
22	4	LE	1.2e		
23	4	LE	1.2g		
24	4	LE	1.2h	1.2a	
25	4	LE	1.2j		
26	4	LE	3.2a	7.1c	
27	4	LE	1.1c		
28	4	LE	2.1b		
29	4	LE	3.2d		
30	4	LE	4.3d	4.3c; St 6 KI 2.2	
31	4	LE	5.1c		
32	4	LE	1.1g	St 6 KI 2.2	
33	4	LE	1.2d	S 3.2h	
34	4	LE	5.1f		
35	4	LE	5.2e	5.2f	
36	4	LE	3 intro	3.1b; St 6 KI 2.2	
37	4	LE	7.1c	St 6 KI 5.2	
38	4	LE	5.1d	St 6 KI 2.2	
39	4	LE	1.1e		
40	4	LE	7.1b	St 6 KI 2.2	
41	4	LE	7.2c	4.1b	
42	4	LE	7.2d	St 1 S 1.2, St 6 KI 2.2	

Grade 8 Intermediate-Level Science Reference to Core Curriculum for Individual Test Questions on Written Test—Spring 2009					
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	4	LE	4.1b	St 6 KI 2.2; St 1 M 2.1b	
44	1		S 3.2h	M 2.1a; LE 5.2d	
45	1		S 3.2h	LE 5.2d	
46	4	PS	2.1e	St 1 S 1.4	
47	4	PS	3.1a		PS skill 2
48	4	PS	2.1e		General skill 8
49	4	LE	3.2c	3.2b; PS 2.1f; St 6 KI 2.2	
50	4	PS	2.2g	LE 3.2c; St 6 KI 2.2	
51	4	PS	2.2f	St 6 KI 1 and KI 4	
52	4	PS	2.2a	St 6 KI 2.2	
53	4	PS	2.2o	St 6 KI 2.2	PS skill 7
54	4	PS	2.2p	St 6 KI 2.2	PS skill 7
55	4	PS	2.2r		
56	7		KI 1	LE 7.2d	
57	4	PS	PS skill 11	PS 3.1f; St 6 KI 2.2	PS skill 11
58	4	PS	3.1b	St 6 KI 2.2	
59	4	PS	2.1d	St 6 KI 2.2	
60	4	PS	4.2d	St 6 KI 2.2	
61	4	PS	3.3b	St 1 M 1.1b	
62	4	PS	4.1e	4.1d; St 6 KI 2.2	
63	4	PS	5 intro	5.1d; St 6 KI 2.2	
64	4	LE	4.3e	6.2a; St 6 KI 2.2	
65	4	LE	LE skill 5	LE 2.2c; St 6 KI 2.2	LE skill 5
66	4	LE	LE skill 5	LE 2.2c; St 6 KI 2.2	LE skill 5
67	4	LE	6.1b	St 6 KI 2.2	LE skill 7
68	4	LE	5.1e	St 6 KI 2.2	LE skill 7
69	4	LE	6.1a	St 6 KI 2.2	LE skill 7
70	1		S 2.2b	PS	
71	4	LE	1.2d	St 1 S 1.2b	General skill 8
72	4	PS	2.1g	St 1 S 1.3	
73	4	LE	1.1h		General skill 5
74	6		KI 2.2	LE 2.2c	LE skill 5
75	4	LE	6.2b		General skill 8
76	4	LE	7.1c		General skill 8
77	1		S 1.2c	S 2.1d; PS	
78	4	PS	2.1f		General skill 5
79	1		M 1.1b	LE, St 6 KI 5.2	General skill 4
80	1		S 3.1a	LE	
81	1		M 2.1a	S 3.2h; LE	
82	1		S 2.2d	PS	
83	1		S 3.2d	PS	

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

Station	Question Number	pts	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