THE UNIVERSITY OF THE STATE OF NEW YORK

GRADE 8

INTERMEDIATE-LEVEL TEST

SCIENCE

SPRING 2007

FOR TEACHERS ONLY

RATING GUIDE FOR WRITTEN TEST, 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/ on Monday, April 30, 2007. Conversion charts provided for previous administrations of this test must *not* be used to determine student's final scores for the 2007 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 NYS Education Department web site http://www.emsc.nysed.gov/osa/ at the end of the test administration period. Check this web page before starting the rating process and several times during the rating period.

Questions regarding this test should be directed to the Office of Curriculum, Instruction, and Instructional Technology at (518) 474-5922 or 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

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. For example, scores may be transferred to each student's scannable answer sheet or to the Class Record Sheet.

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. Scores may also be transferred to the Class Record Sheet if your school uses it.

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/ on Monday, April 30, 2007.

On-line 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 on-line 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:

— If you increase the temperature of the liquid, then dissolving time decreases.
— Sugar will dissolve faster in hot water.
— If you decrease the temperature of the liquid, then dissolving time increases.
— Sugar will dissolve more easily in the iced tea.
— If you decrease the temperature, the dissolving time decreases.

Note: A hypothesis must be a statement. A response in question form is *not* a **hypothesis**. A hypothesis is not just a restatement of the problem. It must specify a result. Allow credit for a correctly stated hypothesis if it makes sense based on the information presented.

47 [2] Allow a maximum of 2 credits, 1 for each acceptable response. Acceptable responses include, but are not limited to:

— amount of sugar
— sugar's particle size
— type of container
— type of sugar
— type of tea
— amount of tea/water/liquid
— size of container
— speed of stirring
— length of time stirring

Note: If the student's hypothesis in *a* is *not* acceptable, allow credit if the variables in *b* are correct based on the student's hypothesis in *a*.
Do *not* allow credit for a simple list of ingredients, such as sugar, tea, etc.

48 [1] Allow 1 credit for 39%.

49 [2] Allow a maximum of 2 credits, allocated as follows:

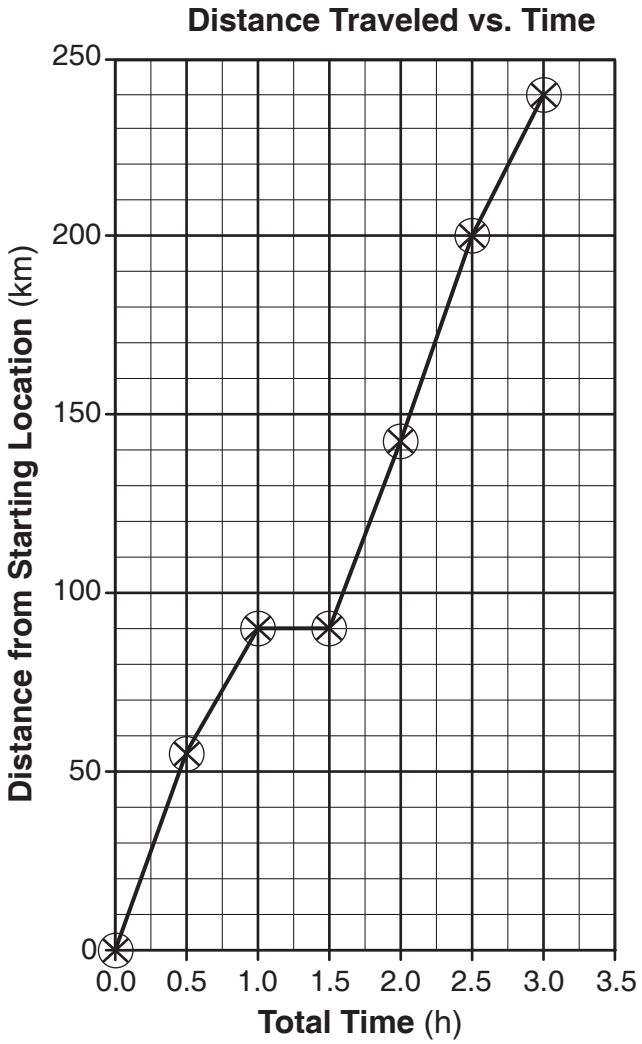
Allow 2 credits if the centers of six or seven **X**s are plotted correctly within the circles shown and correctly connected with a line, as shown below.

Allow 1 credit if the centers of six or seven **X**s are plotted correctly within the circles shown but *not* correctly connected with a line.

or

Allow 1 credit if the centers of four or five **X**s are plotted correctly within the circles shown and correctly connected with a line.

Note: Allow credit if the student uses something other than an **X** to plot the points. Raters might want to make a transparency to use when rating.
Do *not* allow credit for a bar graph.



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

— They stopped.
— They drove the wrong way and then came back.
— They stopped for a break.
— They drove somewhere else and then came back.

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

— carbon dioxide/CO_2
— water
— sunlight/light energy/light
— roots
— stems
— leaves

Unacceptable responses include:

water vapor
food to roots
oxygen

52 [2] *a* Allow 1 credit correctly completing the Punnet square as shown below.

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

b Allow 1 credit for 100% *or* a correct percentage based on the student's cross in *a*.

53 [1] Allow 1 credit for $gg \times gg$.

54 [3] Allow a maximum of 3 credits, allocated as follows:

Allow 3 credits for an acceptable system in all five rows, as shown in the table below.

Allow 2 credits for an acceptable system in only three or four rows.

Allow 1 credit for an acceptable system in only two rows.

Allow 0 credit for an acceptable system in fewer than two rows.

Life Activity	Human Organ System
breaking down large molecules into smaller molecules	digestive
exchanging gases between the blood and the environment	respiratory
removing liquid and gaseous wastes from the body	— excretory — respiratory
transporting needed materials to the cells and carrying wastes away from cells	circulatory
producing offspring	reproductive
moving the body	— skeletal — muscular — nervous

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

— cell membrane
— vacuole
— cytoplasm
— nucleus

56 [1] Allow 1 credit for chloroplast *or* chloroplasts.

57 [1] Allow 1 credit for nucleus.

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

— pine tree
— grass
— algae
— green plants

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

— Sun
— sunlight

60 [2] Allow a maximum of 2 credits, allocated as follows:

Allow 2 credits if all three organisms are identified correctly, as shown in the table below.

Allow 1 credit if only one or two organisms are identified correctly.

Organism	Diet	Type of Organism
white-tailed deer	eat grasses and other plant parts	herbivore
Alaskan brown bear	eats wild berries, leaves, fish, and small rodents	omnivore
shelf fungus	absorbs nutrients from the wood of dead trees	decomposer
African lion	eats antelope and other grazing mammals	carnivore

61 [1] Allow 1 credit for streak and an acceptable procedure. Acceptable responses include, but are not limited to:

Physical property: streak
Procedure:
— Test for streak by rubbing the two samples on a streak plate.
— Scratch each mineral on a piece of unglazed porcelain.

Note: Do *not* allow credit for responses that refer to the mineral being scratched with something (hardness or scratch test).

62 [1] Allow 1 credit for identifying *two* processes. Acceptable responses include, but are not limited to:

— melting and solidification
— melting and crystallization
— melting and cooling
— cooling and crystallization
— cooling and solidification

Unacceptable responses include:

heat
pressure
magma

63 [1] Allow 1 credit for any value in the range from 28 to 32.

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

— The water helps hold the rock up.
— The person supports the weight of the rock in figure *A* and water helps support the rock in figure *B*.
— Water is more dense than air.
— Water has a greater buoyant force than air.
— The water pushes up against the rock.

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

— The rock displaces an equal volume of water.
— The rock takes up space in the water.
— It takes up space in the water.

66 [1] Allow 1 credit if all *three* substances are identified correctly, as shown below.

Soluble material: salt
Insoluble material: sand
Solvent: water

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

— It is made up of more than one substance not chemically combined.
— It can be separated by physical means.
— It is not chemically combined.
— They are combined without chemically changing.
— They are a mixture because they are not bonded and you can take them apart.
— A mixture is two substances combined that can be physically separated again.
— They are physically combined.
— It is classified as a mixture because the salt is dissolved in the water.

Unacceptable responses include:

It is a mixture because the substances are mixed.

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

— The sand was filtered out and then the water evaporated.
— because the water has evaporated
— The water evaporated, leaving the salt behind.

69 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Water from the air has condensed on the glass.
— Water vapor changes to water droplets when the air is cooled.
— Water changed from a gas to a liquid.
— condensation occurred

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

— The ice cubes are floating.
— A portion of the ice cube is above the surface of the water.
— The ice cubes are not on the bottom of the glass.
— It is floating in the water.

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

— A new substance is produced.
— Bubbles are being produced.
— CO_2 gas is produced.

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

— Acid rain occurs in New York State and it will damage the limestone.
— acid rain
— air pollution

Unacceptable responses include:

pollution (The response needs to be more specific.)
rain (Rain alone is not an environmental problem.)

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

— Both balloons have the same charge.
— The charges are the same so they would push each other away.
— Like charges repel.
— Both balloons have a negative charge.
— Both balloons have a positive charge.
— Both balloons have the same electrical charge, and charges of the same kind repel each other.

74 [1] Allow 1 credit for *B*.

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

— Solar power does not pollute our environment.
— Solar power is renewable.
— Fossil fuels pollute the environment.
— Fossil fuels are not renewable.
— It is quieter.
— conservation of fossil fuels

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

— The Northern Hemisphere is tilted away from the Sun on December 21.
— The Southern Hemisphere is experiencing the first day of summer.
— tilt of Earth's axis
— The Sun is more direct in the Southern Hemisphere.
— The Sun is more direct there.
— The South Pole is tilted toward the Sun.

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

— It would be the reverse of the map shown.
— more light area above the equator
— It would be the opposite of what is shown.
— The lighted portion would be continuous north of the Arctic Circle; the area south of the Antarctic Circle would be shaded.

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

— latitude and longitude
— rectangular coordinate system
— an *x*-*y* grid system

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

— rotation
— Earth's rotation
— The Earth spins on its axis.
— The Earth spins west to east.

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 2007 Written Test
Performance Test Form A

Item maps contained in this appendix:

- Reference to *Intermediate-Level Science Core Curriculum Grades 5-8* — Spring 2007 Written Test and Performance Test, Form A
- Reference to Process Skills Based on Standard 4 — Spring 2007 Written Test and Performance Test, Form A
- Reference to Core Curriculum for Individual Test Questions — Spring 2007 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 2007 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	46, 72
	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	65
	1.4 Seek to clarify, to assess critically, and to reconcile with their own thinking the ideas presented by others, including peers, teachers, authors, and scientists.		7		
Standard 1 Scientific Inquiry Key Idea 2 Beyond the use of reasoning and consensus, scientific inquiry involves the testing of proposed explanations involving the use of conventional techniques and procedures and usually requiring considerable ingenuity.	**2.1** Use conventional techniques and those of their own design to make further observations and refine their explanations, guided by a need for more information.	3 4 5 6		1 2	
	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			44, 47
	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		40, 41, 49, 60
	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	42, 43, 48, 50, 61, 62, 63
	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		45, 63
	2 Deductive and inductive reasoning are used to reach mathematical conclusions.		4, 5, 6, 7		48
	3 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**			**Spring 2007 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.				24, 25, 26, 27, 39, 45, 76, 77, 78, 79
	2 Many of the phenomena that we observe on Earth involve interactions among components of air, water, and land.				22, 28, 29, 42, 48, 61, 62
	3 Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.				30, 33, 63, 64, 65, 66, 67, 68, 69, 70, 71
	4 Energy exists in many forms, and when these forms change energy is conserved.				23, 31, 32, 35, 36, 37, 46, 47, 70, 73, 74, 75
	5 Energy and matter interact through forces that result in changes in motion.				34, 38
Standard 4 Living Environment	**1** Living things are both similar to and different from each other and from nonliving things.				1, 2, 4, 21, 31, 54, 55, 56
	2 Organisms inherit genetic information in a variety of ways that result in continuity of structure and function between parents and offspring.				5, 6, 52, 53, 57
	3 Individual organisms and species change over time.				3, 7, 10, 44
	4 The continuity of life is sustained through reproduction and development.				1, 8, 11, 12, 13, 14, 15
	5 Organisms maintain a dynamic equilibrium that sustains life.				3, 9, 18, 51, 60
	6 Plants and animals depend on each other and their physical environment.				16, 19, 51, 58, 59
	7 Human decisions and activities have had a profound impact on the physical and living environment.				17, 20, 72, 75

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 2007 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				21
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	11, 14, 24, 34, 35, 37, 38, 51, 52, 53, 55, 56, 57, 58, 59, 64, 65, 66, 67, 68, 69, 70, 71, 74, 76, 77, 78, 79
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.				78
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.				75
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.				42
	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 2007 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		
	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				
	8. identify cause-and-effect relationships		4, 5, 6	6, 7	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				52, 53
	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				
	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				61
	3. use a diagram of the rock cycle to determine geological processes that led to the formation of a specific rock type				62
	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				40, 41
	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				65
	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 – Spring 2007

Question Number	MST Learning Standard	Area within Standard 4 (PS or LE)	Key Idea or Major Understanding	Other Standards, Key Ideas, or Major Understandings	Process Skills Based on Standard 4
1	4	LE	1.1b	4.1b	
2	4	LE	1.1e		
3	4	LE	Intro 3	5.1a	
4	4	LE	1.1h		
5	4	LE	2.1d		
6	4	LE	2.1e		
7	4	LE	3.2d		
8	4	LE	4.1b		
9	4	LE	5.1f		
10	4	LE	3.1c		
11	4	LE	4.2a	4.2b; St 6 KI 2	
12	4	LE	4.4a		
13	4	LE	4.1c		
14	4	LE	4.3d	4.3f; St 6 KI 2	
15	4	LE	4.3c		
16	4	LE	6.2b	6.2c	
17	4	LE	7.1b		
18	4	LE	5.2d		
19	4	LE	6.2c		
20	4	LE	7.2b		
21	6	—	KI 1	LE 1.1c	
22	4	PS	2.1e		
23	4	PS	4.4b		
24	4	PS	1.1d	St 6 KI 2	
25	4	PS	1.1g		
26	4	PS	1.1h		
27	4	PS	1.1i		
28	4	PS	2.2m		
29	4	PS	2.2f	2.1g	
30	4	PS	3.2e		
31	4	PS	4.2c		
32	4	PS	4.1b		
33	4	PS	3.2c		
34	4	PS	5.2d	5.1c; St 6 KI 2	
35	4	PS	4.4g	St 6 KI 2	
36	4	PS	4.2c		
37	4	PS	4.2b	St 6 KI 2	
38	4	PS	5.2g	St 6 KI 2	
39	4	PS	1.1e		
40	4	PS	see skill	St 1 S 3.1b	PS Skill 7
41	4	PS	see skill	St 1 S 3.1b	PS Skill 7
42	7	—	KI 1.2	PS 2.2r; St 1 S 3.2h	
43	1	—	S 3.2h	LE	

Grade 8 Intermediate-Level Science
Reference to Core Curriculum for Individual Test Questions on Written Test – Spring 2007

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
44	1	—	S 2.2d	LE 3.2d	
45	4	PS	1.1f	St 1 M 1.1b	
46	1	—	S1.2a	PS 4.2e	
47	1	—	S 2.2d	PS 4.2e	
48	1	—	S 3.2h	M 2.1a; PS 2.1e	
49	1	—	S3.1a	PS	
50	1	—	S3.2h	PS	
51	4	LE	5.1d	6.2a, 6.2b; St 6 KI 2	
52	4	LE	2.2c	St 6 KI 2	LE Skill 5
53	4	LE	2.2c	St 6 KI 2	LE Skill 5
54	4	LE	1.2a	1.2d,e,f,g,l	
55	4	LE	1.1c	St 6 KI 2	
56	4	LE	1.1c	St 6 KI 2	
57	4	LE	2.1a	St 6 KI 2	
58	4	LE	6.1b	St 6 KI 2	
59	4	LE	6.1a	St 6 KI 2	
60	4	LE	5.1e	St 1 S 3.1a	
61	4	PS	2.1e	St 1 S3.2h	PS Skill 2
62	4	PS	2.2g	St 1 S 3.2h	PS Skill 3
63	1	—	M1.1	S 3.2h; PS 3.1b	
64	4	PS	3.1i	St 6 KI 2	
65	4	PS	3.1f	St 1 S 1.3; St 6 KI 2	PS skill 11
66	4	PS	3.1g	St 6 KI 2	
67	4	PS	3.2b	3.1g; St 6 KI 2	
68	4	PS	3.1g	St 6 KI 2	
69	4	PS	3.2a	St 6 KI 2	
70	4	PS	3.1i	4.2d; St 6 KI 2	
71	4	PS	3.2c	St 6 KI 2	
72	4	LE	7.2d	St 1 S1.2	
73	4	PS	4.4f		General Skill 8
74	4	PS	4.5a	St 6 KI 2	
75	4	PS	4.1b	St 6 KI 6; LE 7.2d	
76	4	PS	1.1i	St 6 KI 2	
77	4	PS	1.1i	St 6 KI 2	
78	4	PS	1.1f	St 6 KI 2 & KI 3	
79	4	PS	1.1h	1.1e; St 6 KI 2	

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