THE UNIVERSITY OF THE STATE OF NEW YORK

GRADE 8

INTERMEDIATE-LEVEL SCIENCE TEST

JUNE 2010 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 2010 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/ during the rating 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.

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.

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.

    Note: Some schools will transfer a score for each Part II question rather than a total raw score for Part II. These are local decisions that depend on the answer sheet your school uses.

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

— identical columns

— amount of water

— volume of particles

— particles are the same substance

— particles have the same shape

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

— The water flowed more quickly through the large particles.

— The water flowed more slowly through the small particles.

— It took water longer to flow through the small particles.

— The smaller the particles, the longer the time for the water to go through.

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

— Magnets attract nickel and cobalt, but do not attract aluminum and copper.

— Magnets attract some metals.

— Magnets do not attract all metals.

49 [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 and connected with a line that passes within the circles.

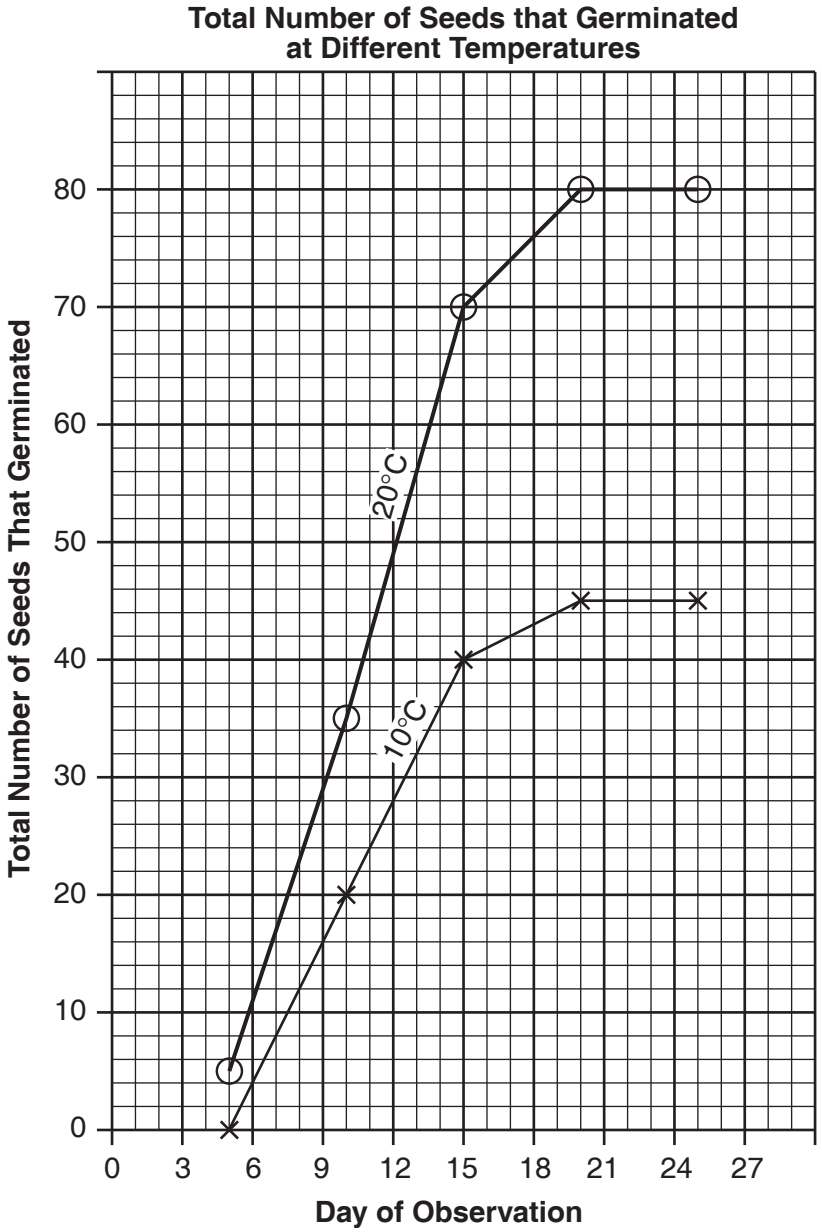
Allow 1 credit if the centers of only three or four **X**s are plotted within the circles shown and connected with a line that passes within the circles.

or

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

Note: Allow credit if a symbol other than an **X** is used to plot the data.
The 20°C label does *not* need to appear on the student's graph to receive credit.
Do *not* deduct credit if the student connects the 20°C line to the *x*-axis.
It is recommended that an overlay be used to ensure reliability in rating.

Example of a 2-credit graph:



50 [1] Allow 1 credit for 28 seeds.

51 [1] Allow 1 credit for circling the graph shown below.

52 [1] Allow 1 credit for 29 cm.

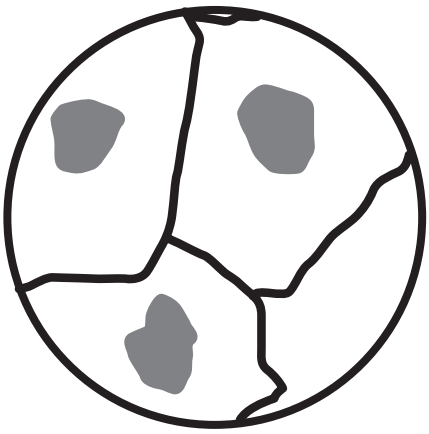
53 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— nucleus
— nuclear membrane

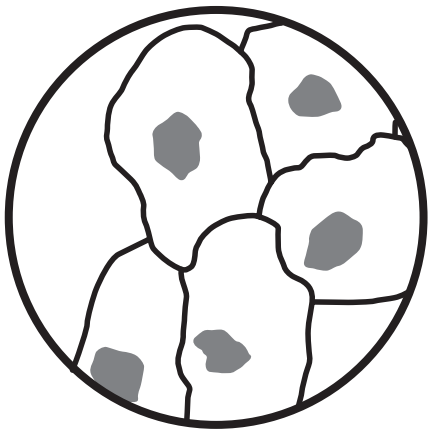
54 [1] Allow 1 credit if the drawing shows any of the following features:

— fewer cells of a larger size than the original diagram
— fewer cells and nuclei larger than the original diagram

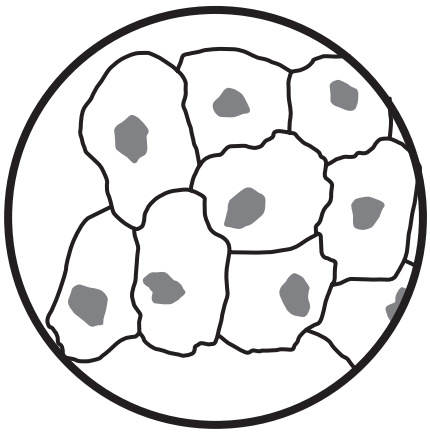
Examples of 1-credit responses:



400×



400×



400×

55 [2] Allow a maximum of 2 credits, allocated as follows:

- Allow 1 credit for the correct date: May 7
- Allow 1 credit for the correct time. Acceptable responses include, but are not limited to:

  — 2:46 p.m.

  — 2:46 in the afternoon

  — 14:46

56 [2] Allow 2 credits if all three organ systems are correctly identified.

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

Acceptable responses include, but are not limited to:

Function	Human Organ System
controls and coordinates the body's responses	nervous
carries nutrients to the cells	— circulatory — cardiovascular
turns large food molecules into smaller food molecules	— digestive
supplies oxygen to the blood	— respiratory

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

Cell *A*: — sperm
— gamete

Sex of rabbit: male

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

— The offspring received half of its genetic information from each parent.

— Sexual reproduction causes variation.

— The reproduction shown is sexual reproduction and not asexual.

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

— They each have the dominant gene for green pod color.
— Green is dominant over yellow.
— They each show the dominant trait.
— The yellow is hidden/masked by the green.
— *G* is dominant over *g*.

Unacceptable responses include:

Green is stronger.
Green overpowers yellow.

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

— Beetles undergo the process of metamorphosis during their development. Alligators do not.
— Beetles undergo major changes in body form during development, but alligators do not.
— The young of beetles look different from their adult form.
— Beetles go through a larval/pupa stage of development while alligators do not.

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

— uses renewable resources
— produces less air pollution
— does not use fossil fuels

Note: Economic impacts, such as fuel costs, are *not* acceptable.

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

— river ecosystem is disrupted
— access to river is limited
— flooding
— more erosion
— produces noise pollution
— may heat the river water

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

— meadowlark/lark

— peregrine falcon/falcon

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

— The grasshoppers are needed by the meadowlarks for food and the meadowlarks are needed by the falcons for food.

— Some chemicals can accumulate in the tissues of the organism and be transferred to the next-level consumer and cause death/reduce the population.

— The meadowlarks would have less to eat and might move away or die. Then the falcons would have less to eat.

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

— Rabbits eat plants (grasses/shrubs) and plants use the Sun's energy to produce food.

— Plants need the Sun to grow and rabbits need the plants to eat.

66 [1] Allow 1 credit for all *three* organisms: deer, crickets, and rabbits.

Note: Do *not* allow credit for "mice." They are omnivores.

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

— sunlight

— water

— living space (soil)

— carbon dioxide

— nutrients

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

— the Sun

— sunlight

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

— Bacteria recycle the nutrients.

— They decompose organic remains.

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

Predator: — robin

— bird

Prey: worm

Predator: woodpecker

Prey: beetle

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

— The coastlines of South America and Africa fit together like puzzle parts.

— The plate boundary between the South American Plate and African Plate matches the eastern coastline of South America and western coastline of Africa.

Unacceptable responses include:

matching layers (These are not shown on the map.)
matching fossils (These are not shown on the map.)

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

— earthquakes

— volcanic activity

— volcanoes

— mountain building

— subduction

— rifting

— seafloor spreading

— tsunami

— faulting

73 [1] Allow 1 credit for *two* acceptable responses: melting and solidification.

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

— weathering

— erosion

— uplift

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

— City *A* is near a high-pressure system.
— City *A* is located in a cold, dry air mass.
— City *A* is located behind a cold front.

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

— The water will evaporate.
— Water will change from a liquid to a gas.
— The water will evaporate, condense, and go into the glass.

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

— precipitation
— rain
— drizzle
— liquid precipitation

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

— The sediment will not evaporate.
— The sediment will not change phase.
— The sediment is solid, so it will not evaporate.

79 [1] Allow 1 credit for 6 atoms.

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

— pull back more on the bow string (apply greater force)

— use an arrow with less mass

— use a more aerodynamic arrow

— shoot the arrow in the same direction as the wind

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

— Gravity will cause the arrow to fall to the ground.

— The arrow will accelerate toward Earth.

— The arrow will change direction.

— The path of the arrow will curve toward Earth.

Appendix A

New York State Grade 8 Intermediate-Level Science Test
June 2010

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 2010 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
June 2010 Written Test
Performance Test Form A

Item maps contained in this appendix:

- Reference to *Intermediate-Level Science Core Curriculum Grades 5-8* — June 2010 Written Test and Performance Test, Form A
- Reference to Process Skills Based on Standard 4 — June 2010 Written Test and Performance Test, Form A
- Reference to Core Curriculum for Individual Test Questions — June 2010 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 2010 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			42
	1.2 Construct explanations independently for natural phenomena, especially by proposing preliminary visual models of phenomena.		8	4	2
	1.3 Represent, present, and defend their proposed explanations of everyday observations so that they can be understood and assessed by others.		7 8	5 6	
	1.4 Seek to clarify, to assess critically, and to reconcile with their own thinking the ideas presented by others, including peers, teachers, authors, and scientists.		7		
Standard 1 Scientific Inquiry Key Idea 2 Beyond the use of reasoning and consensus, scientific inquiry involves the testing of proposed explanations involving the use of conventional techniques and procedures and usually requiring considerable ingenuity.	**2.1** Use conventional techniques and those of their own design to make further observations and refine their explanations, guided by a need for more information.	3 4 5 6		1 2	3
	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			46
	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		49
	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	1, 3, 47, 48, 52, 55, 67
	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		51
	2 Deductive and inductive reasoning are used to reach mathematical conclusions.		4, 5, 6, 7		50, 55
	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**			**June 2010 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.				43
	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.				27, 28, 29, 30, 55, 56
	2 Many of the phenomena that we observe on Earth involve interactions among components of air, water, and land.				25, 31, 32, 33, 34, 46, 47, 71, 72, 73, 74, 75
	3 Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.				2, 32, 35, 36, 37, 39, 76, 77, 78, 79
	4 Energy exists in many forms, and when these forms change energy is conserved.				38, 40, 41, 48, 68
	5 Energy and matter interact through forces that result in changes in motion.				42, 44, 51, 52, 80, 81
Standard 4 Living Environment	**1** Living things are both similar to and different from each other and from nonliving things.				7, 8, 10, 11, 18, 19, 21, 23, 53, 56, 67
	2 Organisms inherit genetic information in a variety of ways that result in continuity of structure and function between parents and offspring.				9, 13, 58, 59
	3 Individual organisms and species change over time.				5, 14, 15, 20, 22
	4 The continuity of life is sustained through reproduction and development.				12, 16, 17, 49, 57, 58, 60
	5 Organisms maintain a dynamic equilibrium that sustains life.				1, 6, 23, 24, 63, 66, 69
	6 Plants and animals depend on each other and their physical environment.				24, 64, 65, 68
	7 Human decisions and activities have had a profound impact on the physical and living environment.				3, 4, 61, 62, 64, 67, 69, 70

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 2010 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				23
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	4, 5, 10, 11, 19, 22, 24, 25, 26, 29, 33, 36, 38, 40, 44, 45, 48, 53, 57, 58, 59, 60, 63, 64, 65, 66, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81
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.				54
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	55, 73, 74
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.				61, 62
	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 2010 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		26
	3. use appropriate units for measured or calculated values			1, 2, 3	
	4. recognize and analyze patterns and trends		7, 8		54
	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				5
	8. identify cause-and-effect relationships		4, 5, 6	6, 7	
	9. use indicators and interpret results				
Living Environment Skills	1. manipulate a compound microscope to view microscopic objects	6, 8			54
	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				
	6. classify living things according to a student-generated scheme and an established scheme	9			19
	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				10, 11
Physical Setting Skills	1. given the latitude and longitude of a location, indicate its position on a map and determine the latitude and longitude of a given location on a map				
	2. using identification tests and a flow chart, identify mineral samples				
	3. use a diagram of the rock cycle to determine geological processes that led to the formation of a specific rock type				73, 74
	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				45, 75
	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.				43
	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				36
	13. determine the identity of an unknown element, using physical and chemical properties				
	14. using appropriate resources, separate the parts of a mixture				
	15. determine the electrical conductivity of a material, using a simple circuit				
	16. determine the speed and acceleration of a moving object				

Grade 8 Intermediate-Level Science
Reference to Core Curriculum for Individual Test Questions on Written Test—June 2010

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	1		S 3.2h	LE 5.2b	
2	1		S 1.2c	PS 3.1a	
3	1		M 2.1a	S 3.2h; LE 7.1b	
4	4	LE	7.2b	St 6 KI 2.2	
5	6		2.2	LE 3 introduction	General skill 7
6	4	LE	5.2e	5.2f	
7	4	LE	1.2e		
8	4	LE	1.2h		
9	4	LE	2.2c		
10	4	LE	1.1f	St 6 KI 2.2	LE skill 9
11	4	LE	1.1f	St 6 KI 2.2	LE skill 9
12	4	LE	4.4d		
13	4	LE	2.1a		
14	4	LE	3.1a		
15	4	LE	3.2b		
16	4	LE	4.3b		
17	4	LE	4.4a	4.1b	
18	4	LE	1.1c		
19	4	LE	LE skill 6	LE 1.1h; St 6 KI 2.2	LE skill 6
20	4	LE	3 intro	3.1b	
21	4	LE	1.1a		
22	4	LE	3.2c	St 6 KI 2.2	
23	4	LE	5.1f	1.2h; St 6 KI 1.4	
24	4	LE	6.2b	5.1d; 6.2a; St 6 KI 2.2	
25	4	PS	2.1f	St 6 KI 2.2	
26	4	PS	General skill 2	St 6 KI 2.2	General skill 2
27	4	PS	1.1g		
28	4	PS	1.1g		
29	4	PS	1.1h	St 6 KI 2.2	
30	4	PS	1.1i		
31	4	PS	2.1d		
32	4	PS	2.1e	3.1a	
33	4	PS	2.1h	St 6 KI 2.2	
34	4	PS	2.2r		
35	4	PS	3.1b		
36	4	PS	3.2d	3.3g; St 6 KI 2.2	PS skill 12
37	4	PS	3.3f	3.3g	
38	4	PS	4.4b	St 6 KI 2.2	
39	4	PS	3.1c	3.3b	
40	4	PS	4.1a	St 6 KI 2.2	
41	4	PS	4.1b		
42	4	PS	5.1d	St 1 M 1.1c	

Grade 8 Intermediate-Level Science
Reference to Core Curriculum for Individual Test Questions on Written Test—June 2010

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	PS	PS skill 9	St 2 KI 1.4	PS skill 9
44	4	PS	5.2e	St 6 KI 2.2	
45	4	PS	PS skill 7	St 6 KI 2.2	PS skill 7
46	1		S 2.2d	PS 2.1	
47	1		S 3.2d	PS 2.1	
48	1		S 3.2d	PS 4.4g; St 6 KI 2	
49	1		S 3.1	LE 4.3e	
50	1		M 2.1a	LE	
51	1		M 1.1b	PS 5.1b	
52	1		S 3.2h	PS 5.1b	
53	4	LE	1.1c	St 6 KI 2.2	
54	6		3		General skill 4; LE skill 1
55	1		M 2.1b	S 3.2h; PS 1.1e; St 6 KI 5.2	
56	4	LE	1.2f	1.2c, 1.2d	
57	4	LE	4.2a	St 6 KI 2.2	
58	4	LE	2.1e	4.2b; St 6 KI 2.2	
59	4	LE	2.2b	St 6 KI 2.2	
60	4	LE	4.3d	St 6 KI 2.2	
61	4	LE	7.2	St 7 KI 1	
62	4	LE	7.2	St 7 KI 1	
63	4	LE	5.1e	St 6 KI 2.2	
64	4	LE	7.1c	7.2d, 6.1b; St 6 KI 2.2	
65	4	LE	6.2c	St 6 KI 2.2	
66	4	LE	5.1e	St 6 KI 2.2	
67	4	LE	7.1b	7.1c, 1.1h; St 1 S 3.2h	
68	4	LE	6.1a	PS 4.1a; St 6 KI 2.2	
69	4	LE	7.1d	5.1e; St 6 KI 2.2	
70	4	LE	7.1c	St 6 KI 2.2	
71	4	PS	2.2d	St 6 KI 2.2	
72	4	PS	2.2f	St 6 KI 2.2	
73	4	PS	2.2h	St 6 KI 2.2, KI 5.2	PS skill 3
74	4	PS	2.2h	St 6 KI 2.2, KI 5.2	PS skill 3
75	4	PS	2.2p	2.2l, St 6 KI 2.2	PS skill 7
76	4	PS	3.1g	3.2a; St 6 KI 2.2	
77	4	PS	3.1g	St 6 KI 2.2	
78	4	PS	3.1g	St 6 KI 2.2	
79	4	PS	3.3c	St 6 KI 2.2	
80	4	PS	5.1d	St 6 KI 2.2	
81	4	PS	5.2a	5.1c; St 6 KI 2.2	

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

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