

FOR TEACHERS ONLY

The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

PS-ES PHYSICAL SETTING/EARTH SCIENCE

Tuesday, January 27, 2004 — 1:15 to 4:15 p.m., only

SCORING KEY AND RATING GUIDE

Directions to the Teacher:

Refer to the directions on page 3 before rating student papers.

Part A and Part B-1

Allow 1 credit for each correct response.

Part A			Part B-1	
1 3	13 2	25 1	36 4	44 4
2 4	14 1	26 2	37 1	45 1
3 2	15 2	27 3	38 4	46 3
4 2	16 4	28 1	39 2	47 4
5 3	17 4	29 3	40 2	48 3
6 2	18 3	30 2	41 1	49 1
7 2	19 3	31 4	42 1	50 3
8 2	20 1	32 1	43 4	
9 3	21 2	33 1		
10 4	22 1	34 1		
11 3	23 2	35 3		
12 4	24 4			

Directions to the Teacher

Follow the procedures below for scoring student answer papers for the Physical Setting/Earth Science examination. Additional information about scoring is provided in the publication *Information Booklet for Administering and Scoring Regents Examinations in the Sciences*.

Use only *red* ink or *red* pencil in rating Regents papers. Do *not* correct the student's work by making insertions or changes of any kind.

On the detachable answer sheet for Part A and Part B–1, indicate by means of a checkmark each incorrect or omitted answer. In the box provided at the end of each part, record the number of questions the student answered correctly for that part.

At least two science teachers must participate in the scoring of each student's responses to the Part B–2 and Part C open-ended questions. Each of these teachers should be responsible for scoring a selected number of the open-ended questions on each answer paper. No one teacher is to score all the open-ended questions on a student's answer paper.

Students' responses must be scored strictly according to the Scoring Key and Rating Guide. For open-ended questions, credit may be allowed for responses other than those given in the rating guide if the response is a scientifically accurate answer to the question and demonstrates adequate knowledge as indicated by the examples in the rating guide. In the student's answer booklet, record the number of credits earned for each answer in the box printed to the right of the answer lines or spaces for that question.

Fractional credit is *not* allowed. Only whole-number credit may be given to a response. Units need not be given when the wording of the questions allows such omissions.

Raters should enter the scores earned for Part A, Part B–1, Part B–2, and Part C on the appropriate lines in the box printed on the answer booklet and then should add these four scores and enter the total in the box labeled "Total Written Test Score." The student's score for the Earth Science Performance Test should be entered in the space provided. Then, the student's raw scores on the performance test and written test should be converted to a scaled score by using the conversion chart printed at the end of this Scoring Key and Rating Guide. The student's scaled score should be entered in the labeled box on the student's answer booklet. The scaled score is the student's final examination score.

All student answer papers that receive a scaled score of 60 through 64 **must** be scored a second time. For the second scoring, a different committee of teachers may score the student's paper or the original committee may score the paper, except that no teacher may score the same open-ended questions that he/she scored in the first rating of the paper. The school principal is responsible for assuring that the student's final examination score is based on a fair, accurate, and reliable scoring of the student's answer paper.

Because scaled scores corresponding to raw scores in the conversion chart may change from one examination to another, it is crucial that for each administration, the conversion chart provided in the scoring key for that administration be used to determine the student's final score. The chart in this scoring key is usable only for this administration of the examination.

Part B–2

Allow a total of 15 credits for this part. The student must answer all questions in this part.

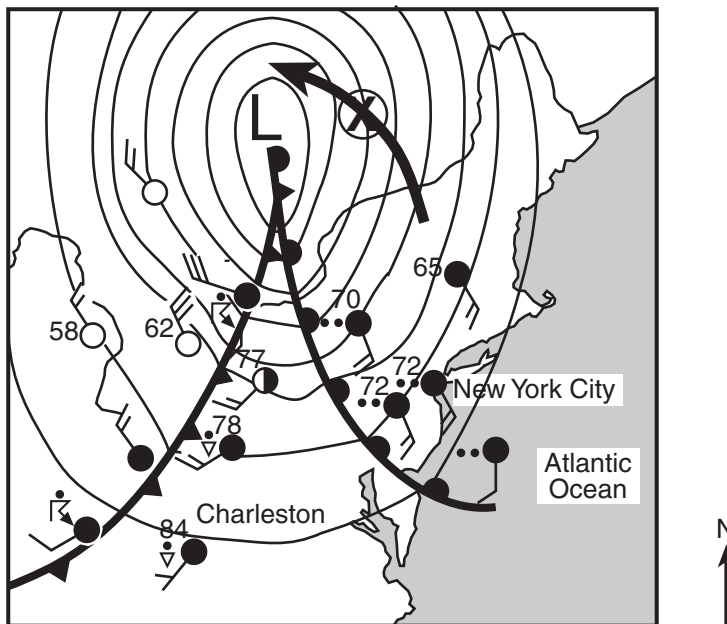
- 51 [1] Allow 1 credit for **sedimentary rock** or any specific type of sedimentary rock.
- 52 [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
 0° ($\pm 10^\circ$) latitude
 Equator
- 53 [1] Allow 1 credit for ***Valcouroceras***.
- 54 [1] Allow 1 credit for **11** (± 1).
- 55 [2] Allow 1 credit for an arrow showing counterclockwise direction of movement around the low.

and

Allow 1 credit for an arrow curving inward toward the low.

Note: Allow credit for a correctly drawn arrow even if the arrow does not go through the center of the **X**.

An example of an acceptable response is shown below.



- 56** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

Closely spaced isobars represent a region of high wind velocity.

As isobars become closer, wind speed increases.

- 57** [2] Allow 2 credits if four or five answers including units are correct.

Allow only 1 credit if only two or three answers including units are correct.

Acceptable responses include, but are not limited to, these examples:

Weather Conditions	Description
(1) Air temperature	84°F
(2) Present weather	Rain showers or rain
(3) Wind speed	5 knots
(4) Wind direction	From southwest
(5) Cloud cover	100% or overcast or full cloud cover

- 58** [2] **a** Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, this example:

Clouds form when rising air expands and cools to the dewpoint.

- b** Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

from gas to liquid

Water vapor condenses.

deposition

gas to solid

- 59** [2] Allow 2 credits if all three answers are correct.

Allow only 1 credit if only one or two answers are correct.

Acceptable responses include, but are not limited to, these examples:

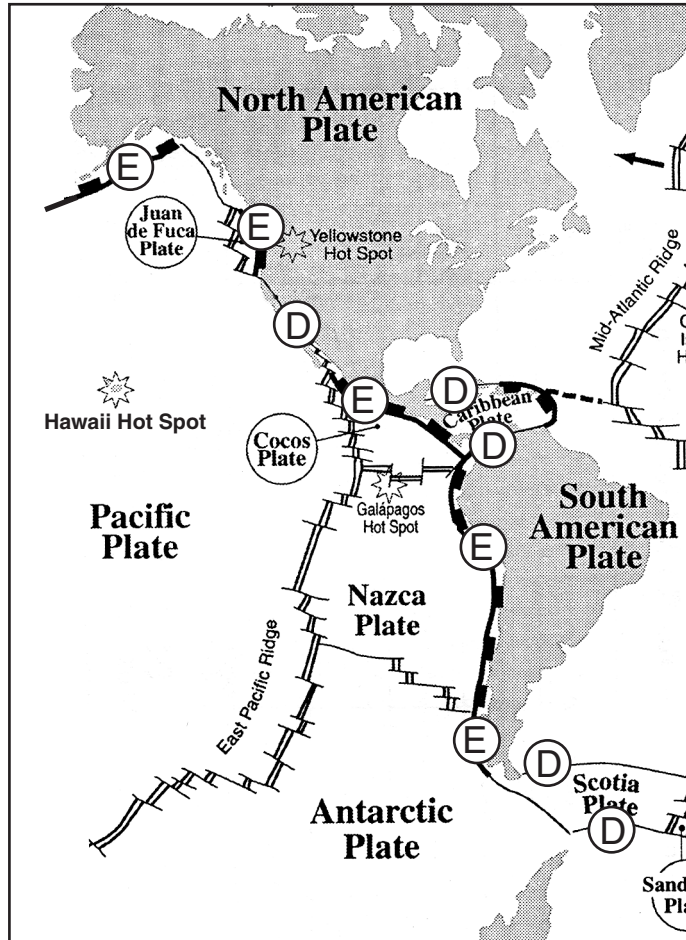
Letter	Information That Should Be Placed in Each Box
A	Convergent boundary
B	Move apart or separate
C	Two continental plates collide.

- 60 [2] Allow 1 credit for writing the letter *D* on any transform plate boundary. Student answers locating *D* over major transform ocean-ridge faults should also be accepted for credit.

and

Allow 1 credit for writing the letter *E* on any subduction plate boundary between an oceanic plate and a continental plate.

The diagram below shows examples of locations where the letters *D* and *E* could be placed.

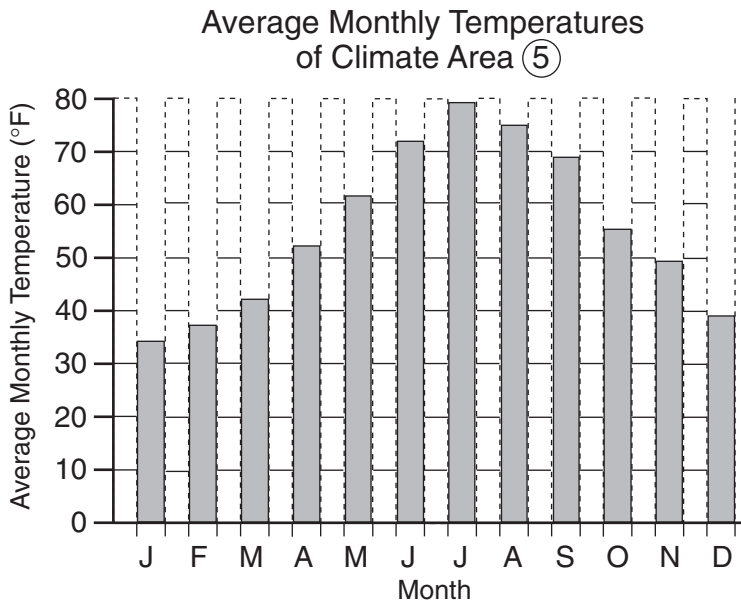


Part C

Allow a total of 20 credits for this part. The student must answer all questions in this part.

- 61** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- The valley has a U-shaped cross section.
 - The bottom of the valley is round.
 - Nonglaciaded mountain valleys are V-shaped; this one is U-shaped.
- 62** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- piles of unsorted sediments deposited across the valley floor (moraines)
 - parallel scratches and/or grooves in the bedrock (striations)
- 63** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- similar latitudes
 - similar duration of insolation
 - similar intensity of insolation
 - similar monthly changes in the altitude of the Sun
- 64** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- humidity
 - precipitation
 - moisture
- 65** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- The elevation of area 3 is higher.
 - Climate region 3 is located in a mountainous region.

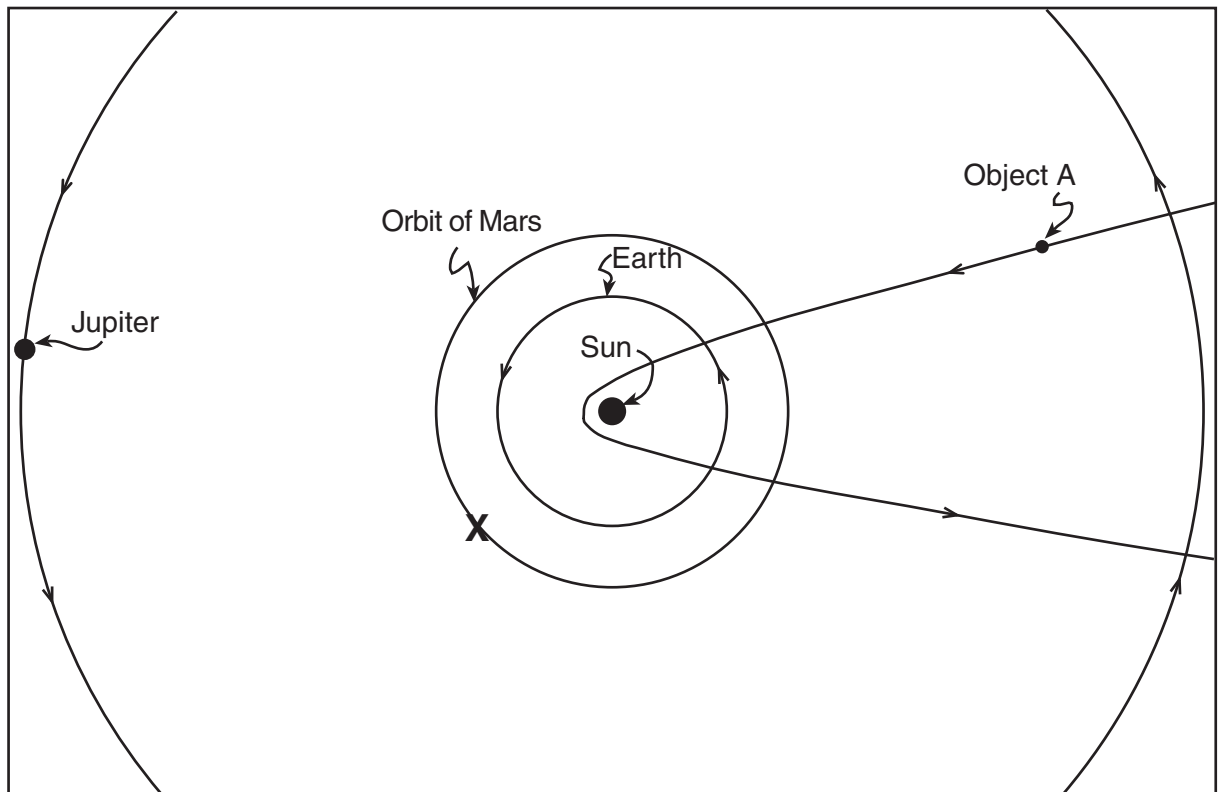
- 66** [2] Allow 2 credits if ten or eleven bars are correctly drawn ($\pm 2^{\circ}\text{F}$).
 Allow only 1 credit if only six to nine bars are correctly drawn ($\pm 2^{\circ}\text{F}$).
 An example of an acceptable response is shown below.



- 67** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
 The ocean has moderated temperatures, making the temperatures warmer.
 It has increased the temperatures during these months.

- 68 [2] **a** Allow 1 credit for locating Mars 2.3 cm (± 0.2 cm) from the center of the Sun somewhere on the drawn orbit of Mars in the diagram below.
- b** Allow 1 credit for the construction of Mars' orbit as a nearly circular path through the student-plotted **X**.

An example of an acceptable response is shown below.



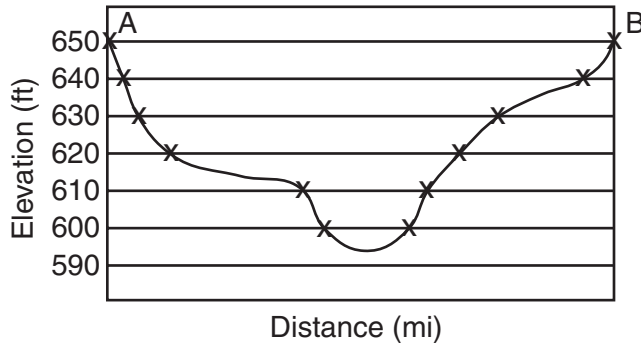
Distance scale 1 cm = 100 million kilometers

(Object size not drawn to scale)

- 69 [1] Allow 1 credit for **comet** or **asteroid** or **meteoroid**.
- 70 [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- Past impact events have been correlated with mass extinctions on Earth.
 - Object A might hit Earth.
 - If object A's path crosses Earth's orbit, a collision might occur that would kill much life on Earth.

- 71 [3] **a** Allow 1 credit for an appropriate vertical scale that fits on the grid according to the directions given on the test.
- b** Allow 1 credit if nine to twelve **Xs** are correctly plotted according to the student's scale.
- c** Allow 1 credit if all the student-plotted **Xs** are correctly connected. The line must dip below the 600-ft elevation but not below the 590-ft elevation to receive credit.

An example of an acceptable response is shown below.



- 72 [1] Allow 1 credit for any response greater than 700 but less than 710 feet.
- 73 [2] Allow 1 credit for rate = **8**.
- and*
- Allow 1 credit for **miles/hour** or **mi/hr**.
- 74 [2] Allow 2 credits, 1 credit for *each* of two correct responses. Acceptable responses include, but are not limited to, these examples:

Lawson could build a levee to protect the houses in the lower areas.

An early warning system could be implemented and practiced so people have time to evacuate the area.

establish emergency procedures that would be followed if the dam broke

designate safe emergency shelters

prevent further development in flood-prone areas

Regents Examination in Physical Setting/Earth Science — January 2004

Chart for Determining the Final Examination Score

(Use for January 2004 examination only.)

To determine the student's final examination score, locate the student's total performance test score across the top of the chart and the student's total written test score down the side of the chart. The point where those two scores intersect is the student's final examination score. For example, a student receiving a total performance test score of 14 and a total written test score of 68 would receive a final examination score of 85.

Total Performance Test Score

		Total Performance Test Score																							
		23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Total Written Test Score	85	100	99	98	97	97	97	97	96	96	95	95	94	94	93	92	92	91	90	89	89	88	87	86	85
	84	99	98	97	97	96	96	96	95	95	94	94	93	93	92	92	91	90	89	89	88	87	86	85	84
	83	99	98	97	97	96	96	96	95	95	94	94	93	93	92	92	91	90	89	89	88	87	86	85	84
	82	98	97	96	96	96	95	95	94	94	94	93	93	92	91	91	90	89	89	88	87	86	85	84	83
	81	98	97	96	96	96	95	95	94	94	94	93	93	92	91	91	90	89	89	88	87	86	85	84	83
	80	97	96	95	95	95	94	94	94	93	93	92	92	91	90	90	89	88	88	87	86	85	84	83	82
	79	97	96	94	94	94	93	93	93	92	92	91	91	90	90	89	88	88	87	86	85	84	83	83	82
	78	97	96	94	94	94	93	93	93	92	92	91	91	90	90	89	88	88	87	86	85	84	83	83	82
	77	96	95	94	93	93	93	92	92	91	91	91	90	89	89	88	87	87	86	85	84	84	83	82	81
	76	95	94	93	92	92	92	91	91	91	90	90	89	89	88	87	87	86	85	84	84	83	82	81	80
	75	95	94	93	92	92	92	91	91	91	90	90	89	89	88	87	87	86	85	84	84	83	82	81	80
	74	94	93	92	92	91	91	91	90	90	89	89	88	88	87	86	86	85	84	84	83	82	81	80	79
	73	93	92	91	91	90	90	90	89	89	88	88	87	87	86	86	85	84	83	83	82	81	80	79	78
	72	92	91	90	90	90	89	89	88	88	88	87	87	86	85	85	84	83	83	82	81	80	79	78	77
	71	92	91	90	90	90	89	89	88	88	88	87	87	86	85	85	84	83	83	82	81	80	79	78	77
	70	92	90	89	89	89	88	88	88	87	87	86	86	85	85	84	83	83	82	81	80	79	78	77	77
	69	91	90	88	88	88	88	87	87	86	86	85	85	84	84	83	82	82	81	80	79	78	78	77	76
	68	90	89	88	87	87	87	86	86	86	85	85	84	83	83	82	82	81	80	79	78	78	77	76	75
	67	89	88	87	86	86	86	85	85	85	84	84	83	83	82	81	81	80	79	78	78	77	76	75	74
	66	89	88	87	86	86	86	85	85	85	84	84	83	83	82	81	81	80	79	78	78	77	76	75	74
	65	88	87	86	86	85	85	85	84	84	83	83	82	82	81	80	80	79	78	78	77	76	75	74	73
	64	87	86	85	85	84	84	84	83	83	82	82	81	81	80	80	79	78	78	77	76	75	74	73	72
	63	86	85	84	84	84	83	83	83	82	82	81	81	80	79	79	78	77	77	76	75	74	73	72	71
	62	86	85	83	83	83	82	82	82	81	81	80	80	79	79	78	77	77	76	75	74	73	72	72	71
	61	85	84	82	82	82	82	81	81	80	80	79	79	78	78	77	76	76	75	74	73	72	72	71	70
	60	84	83	82	81	81	81	80	80	80	79	79	78	77	77	76	76	75	74	73	72	72	71	70	69
	59	83	82	81	80	80	80	80	79	79	78	78	77	77	76	75	75	74	73	72	72	71	70	69	68
	58	82	81	80	80	79	79	79	78	78	77	77	76	76	75	75	74	73	72	72	71	70	69	68	67
57	81	80	79	79	79	78	78	77	77	77	76	76	75	74	74	73	72	72	71	70	69	68	67	66	
56	80	79	78	78	78	77	77	77	76	76	75	75	74	73	73	72	71	71	70	69	68	67	66	65	
55	80	79	77	77	77	76	76	76	75	75	74	74	73	73	72	71	71	70	69	68	67	66	66	65	
54	79	78	77	76	76	76	75	75	74	74	74	73	72	72	71	70	70	69	68	67	67	66	65	64	
53	78	77	76	75	75	75	74	74	74	73	73	72	72	71	70	70	69	68	67	67	66	65	64	63	
52	77	76	75	75	74	74	74	73	73	72	72	71	71	70	69	69	68	67	67	66	65	64	63	62	
51	76	75	74	74	73	73	73	72	72	71	71	70	70	69	69	68	67	66	66	65	64	63	62	61	
50	75	74	73	73	73	72	72	71	71	71	70	70	69	68	68	67	66	66	65	64	63	62	61	60	
49	75	73	72	72	72	71	71	71	70	70	69	69	68	68	67	66	66	65	64	63	62	61	60	60	
48	73	72	71	70	70	70	69	69	69	68	68	67	66	66	65	65	64	63	62	61	61	60	59	58	
47	72	71	70	69	69	69	68	68	68	67	67	66	66	65	64	64	63	62	61	61	60	59	58	57	
46	71	70	69	69	68	68	68	67	67	66	66	65	65	64	63	63	62	61	61	60	59	58	57	56	
45	70	69	68	68	67	67	67	66	66	65	65	64	64	63	63	62	61	61	60	59	58	57	56	55	

Regents Examination in Physical Setting/Earth Science — January 2004
Chart for Determining the Final Examination Score
(Use for January 2004 examination only.)

Total Performance Test Score

Total Written Test Score

	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
44	69	68	67	67	67	66	66	66	65	65	64	64	63	62	62	61	60	60	59	58	57	56	55	54
43	69	68	66	66	66	65	65	65	64	64	63	63	62	62	61	60	60	59	58	57	56	55	55	54
42	67	66	65	64	64	64	63	63	63	62	62	61	60	60	59	59	58	57	56	55	55	54	53	52
41	66	65	64	63	63	63	63	62	62	61	61	60	60	59	58	58	57	56	55	55	54	53	52	51
40	65	64	63	63	62	62	62	61	61	60	60	60	59	59	58	58	57	56	55	55	54	53	52	51
39	64	63	62	62	62	61	61	60	60	60	59	59	58	57	57	56	55	55	54	53	52	51	50	49
38	63	62	60	60	60	59	59	59	58	58	57	57	56	56	55	54	54	53	52	51	50	49	49	48
37	62	61	60	59	59	59	58	58	57	57	57	56	55	55	54	53	53	52	51	50	50	49	48	47
36	61	60	59	58	58	58	57	57	57	56	56	55	55	54	53	53	52	51	50	50	49	48	47	46
35	60	59	58	58	57	57	57	56	56	55	55	54	54	53	52	52	51	50	50	49	48	47	46	45
34	58	57	56	56	56	55	55	54	54	54	53	53	52	51	51	50	49	49	48	47	46	45	44	43
33	58	56	55	55	55	54	54	54	53	53	52	52	51	51	50	49	49	48	47	46	45	44	43	43
32	57	56	54	54	54	54	53	53	52	52	51	51	50	50	49	48	48	47	46	45	44	44	43	42
31	55	54	53	52	52	52	51	51	51	50	50	49	49	48	47	47	46	45	44	44	43	42	41	40
30	54	53	52	52	51	51	51	50	50	49	49	48	48	47	46	46	45	44	44	43	42	41	40	39
29	52	51	50	50	50	49	49	49	48	48	47	47	46	45	45	44	43	43	42	41	40	39	38	37
28	52	51	49	49	49	48	48	48	47	47	46	46	45	45	44	43	43	42	41	40	39	38	38	37
27	51	50	48	48	48	48	47	47	46	46	45	45	44	44	43	42	42	41	40	39	38	38	37	36
26	49	48	47	46	46	46	46	45	45	44	44	43	43	42	41	41	40	39	38	38	37	36	35	34
25	48	47	46	46	45	45	45	44	44	43	43	42	42	41	41	40	39	38	38	37	36	35	34	33
24	46	45	44	44	44	43	43	43	42	42	41	41	40	39	39	38	37	37	36	35	34	33	32	31
23	46	45	43	43	43	42	42	42	41	41	40	40	39	39	38	37	37	36	35	34	33	32	32	31
22	45	44	43	42	42	42	41	41	40	40	40	39	38	38	37	36	36	35	34	33	33	32	31	30
21	43	42	41	41	40	40	40	39	39	38	38	37	37	36	35	35	34	33	33	32	31	30	29	28
20	42	41	40	40	39	39	39	38	38	37	37	36	36	35	35	34	33	32	32	31	30	29	28	27
19	41	39	38	38	38	37	37	37	36	36	35	35	34	34	33	32	32	31	30	29	28	27	26	26
18	40	39	37	37	37	37	36	36	35	35	34	34	33	33	32	31	31	30	29	28	27	27	26	25
17	38	37	36	35	35	35	34	34	34	33	33	32	32	31	30	30	29	28	27	27	26	25	24	23
16	37	36	35	35	34	34	34	33	33	32	32	31	31	30	29	29	28	27	27	26	25	24	23	22
15	35	34	33	33	33	32	32	32	31	31	30	30	29	28	28	27	26	26	25	24	23	22	21	20
14	35	34	32	32	32	31	31	31	30	30	29	29	28	28	27	26	26	25	24	23	22	21	21	20
13	33	32	31	30	30	30	29	29	29	28	28	27	26	26	25	25	24	23	22	21	21	20	19	18
12	31	30	29	29	28	28	28	27	27	26	26	25	25	24	24	23	22	21	21	20	19	18	17	16
11	30	29	28	28	28	27	27	26	26	26	25	25	24	23	23	22	21	21	20	19	18	17	16	15
10	29	28	26	26	26	25	25	25	24	24	23	23	22	22	21	20	20	19	18	17	16	15	15	14
9	28	27	26	25	25	25	24	24	23	23	23	22	21	21	20	19	19	18	17	16	16	15	14	13
8	26	25	24	24	23	23	23	22	22	21	21	20	20	19	18	18	17	16	16	15	14	13	12	11
7	24	23	22	22	22	21	21	20	20	20	19	19	18	17	17	16	15	15	14	13	12	11	10	9
6	24	22	21	21	21	20	20	20	19	19	18	18	17	17	16	15	15	14	13	12	11	10	9	9
5	22	21	20	19	19	19	18	18	18	17	17	16	15	15	14	14	13	12	11	10	10	9	8	7
4	21	20	19	18	18	18	17	17	17	16	16	15	15	14	13	13	12	11	10	9	8	7	6	6
3	19	18	17	17	16	16	16	15	15	14	14	13	13	12	12	11	10	10	9	8	7	6	5	4
2	18	17	15	15	15	14	14	14	13	13	12	12	11	11	10	9	9	8	7	6	5	4	4	3
1	17	16	14	14	14	14	13	13	12	12	11	11	10	10	9	8	8	7	6	5	4	4	3	2
0	15	14	13	12	12	12	12	11	11	10	10	9	9	8	7	7	6	5	4	4	3	2	1	0

Map to Core Curriculum

January 2004 Physical Setting/ Earth Science			
Question Numbers			
Key Ideas/Performance Indicators	Part A	Part B	Part C
Standard 1			
Math Key Idea 1	34		73
Math Key Idea 2	1,6,13,30	49	
Math Key Idea 3		44,54	
Sci. Inq. Key Idea 1		51	64
Sci. Inq. Key Idea 2			
Sci. Inq. Key Idea 3	19,22,25		61
Eng. Des. Key Idea 1			
Standard 2			
Key Idea 1			
Key Idea 2			
Key Idea 3			
Standard 6			
Key Idea 1			62,63,69
Key Idea 2	6	40,41,42,44,45, 50,52,57,59,60	66,69,71
Key Idea 3		53,54,55	68,71,72
Key Idea 4		56	
Key Idea 5		38,39,46,47,48, 49,52,58,59	63,65,66,67
Key Idea 6			
Standard 7			
Key Idea 1			70,74
Key Idea 2			
Standard 4			
Performance Indicator 1	1,2,3,4,5,6,8, 15,16,25,26,28, 32,33	36,37,38,39,40, 51,52,53,54	68,69,70,73
Performance Indicator 2	6,7,9,10,11,12, 13,14,17,20,21, 22,24,27,30	36,41,42,44,45, 46,47,48,49,50, 55,56,57,58,59, 60	61,62,63,64,65, 66,67,71,72,73,74
Performance Indicator 3	18,19,23,29,31, 34,35	43,48	
Reference Tables			
ESRT 2001 edition	2,9,16,19,22, 23,25,28,31,32, 34,35	42,43,45,46,48, 50,52,53,57,59, 60	65,68,73