

# FOR TEACHERS ONLY

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

## PS-ES PHYSICAL SETTING/EARTH SCIENCE

Wednesday, August 13, 2003 — 12:30 p.m. to 3:30 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 ... <b>2</b> .....	13 ... <b>4</b> .....	25 ... <b>3</b> .....	36 ... <b>2</b> .....	44 ... <b>1</b> .....
2 ... <b>4</b> .....	14 ... <b>1</b> .....	26 ... <b>3</b> .....	37 ... <b>3</b> .....	45 ... <b>2</b> .....
3 ... <b>1</b> .....	15 ... <b>2</b> .....	27 ... <b>4</b> .....	38 ... <b>2</b> .....	46 ... <b>3</b> .....
4 ... <b>1</b> .....	16 ... <b>4</b> .....	28 ... <b>4</b> .....	39 ... <b>4</b> .....	47 ... <b>3</b> .....
5 ... <b>3</b> .....	17 ... <b>1</b> .....	29 ... <b>3</b> .....	40 ... <b>1</b> .....	48 ... <b>4</b> .....
6 ... <b>1</b> .....	18 ... <b>3</b> .....	30 ... <b>3</b> .....	41 ... <b>2</b> .....	49 ... <b>2</b> .....
7 ... <b>1</b> .....	19 ... <b>3</b> .....	31 ... <b>4</b> .....	42 ... <b>3</b> .....	50 ... <b>1</b> .....
8 ... <b>2</b> .....	20 ... <b>3</b> .....	32 ... <b>1</b> .....	43 ... <b>2</b> .....	
9 ... <b>2</b> .....	21 ... <b>4</b> .....	33 ... <b>1</b> .....		
10 ... <b>2</b> .....	22 ... <b>1</b> .....	34 ... <b>2</b> .....		
11 ... <b>1</b> .....	23 ... <b>2</b> .....	35 ... <b>4</b> .....		
12 ... <b>4</b> .....	24 ... <b>4</b> .....			



**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 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.

Student's 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**

**51** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

The farther a planet is from the Sun, the longer the planet takes to complete one orbit around the Sun.

direct relationship

**52** [1] Allow 1 credit for **winter**.

**53** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

September 21

September 22

September 23

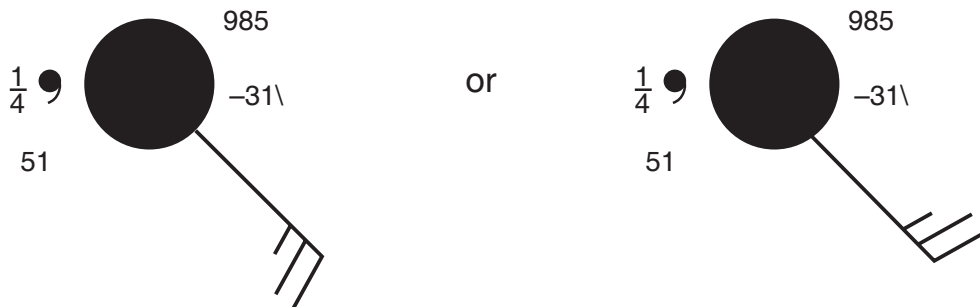
September 24

autumnal equinox

first day of fall

**54** [1] Allow 1 credit for **47** degrees.

**55** [1]



Allow 1 credit for correct symbols of both the wind direction and wind speed.

**56** [1] Allow 1 credit for **998.5** millibars.

**57 [2] a** Allow 1 credit for **drizzle**.

**Note:** Do *not* allow credit for rain.

**b** Allow 1 credit for a correct response. Responses must include both a weather condition and a correct explanation to receive credit. Acceptable responses include, but are not limited to, these examples:

Weather Condition	Explanation
100% cloud cover	indicates that saturated air has condensed
low visibility ( $\frac{1}{4}$ mile)	is most likely caused by water droplets in the air
low air pressure	because humid air is less dense than dry air
Air pressure decreased during the last 3 hours.	This change may indicate that moist air has arrived.

**58 [2]** Allow 1 credit for **50** ( $\pm 3$ ).

*and*

Allow 1 credit for the correct unit **feet per mile** or **ft/mi**.

**Note:** Do *not* allow credit for ft/m.

**59 [1]** Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

Contour lines that cross the Green River bend in the opposite direction of river flow.

Contour lines bend upstream when crossing the Green River.

Contour lines that cross the river form V-shapes. The point of each V-shape indicates the uphill or upstream direction.

**60 [1]** Allow 1 credit for **D**.

**61 [1]** Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

Contour lines are extremely close together.

The most closely spaced contour lines indicate the steepest gradient.

PHYSICAL SETTING/EARTH SCIENCE – *continued*

**62** [1] Allow 1 credit for **20° south** ( $\pm 8^\circ$ ). The correct compass direction must be included.

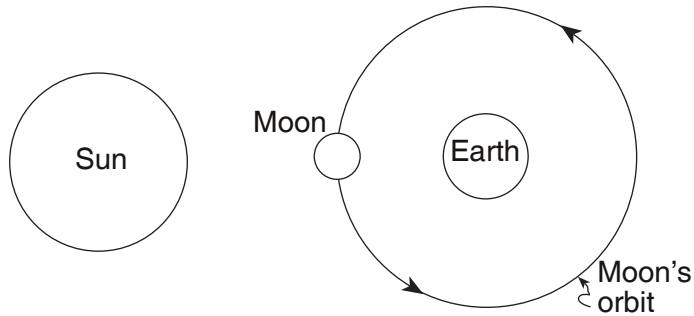
**63** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

Water has a higher specific heat than the land.

Water takes a longer time to heat up and cool down than land.

**Part C**

64 [1]



(Not drawn to scale)

Allow 1 credit for drawing the Moon on the orbit directly between the Sun and Earth.

65 [1] Allow 1 credit for **1** or **1.1** revolution.

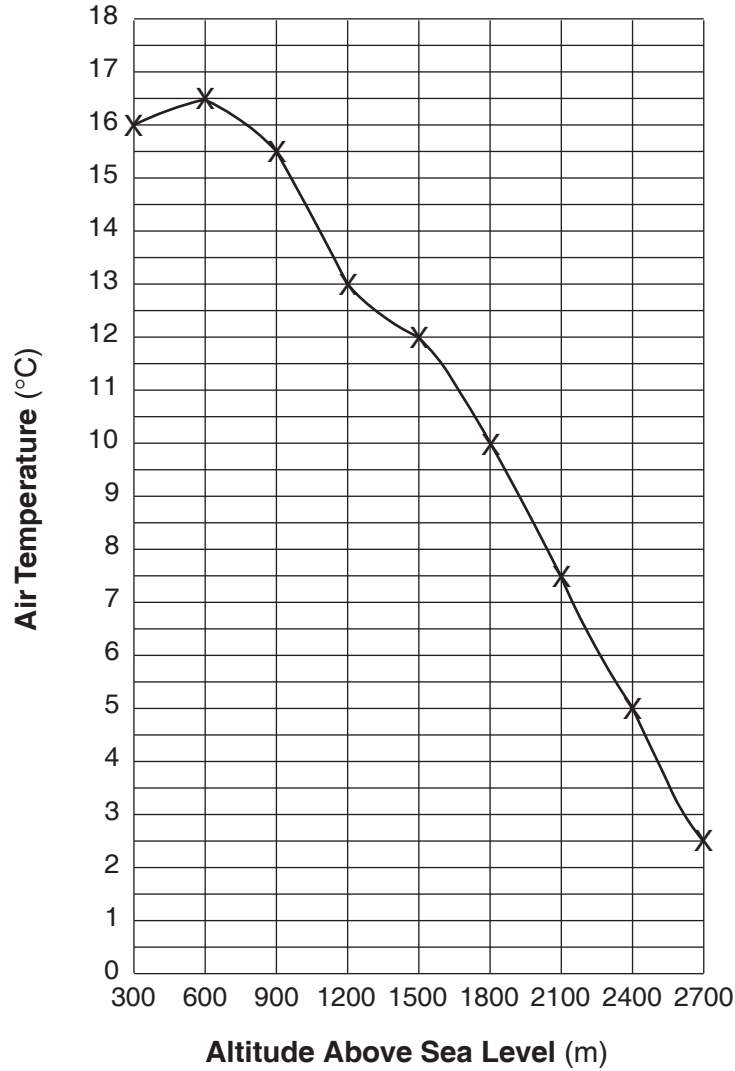
66 [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

The Moon's orbit around Earth is *not* always in the same plane as Earth's orbit around the Sun.

The Moon usually passes above or below the Sun as seen from Earth.

The Sun, Moon, and Earth are only occasionally aligned in a straight line.

67 [2]



Allow 1 credit for correctly plotting seven or more points, even if **Xs** are not used.

*and*

Allow 1 credit for correctly connecting the plotted **Xs** or points, even if they are plotted incorrectly.

68 [1] Allow 1 credit for **barometer** or **altimeter**.



**69** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

inverse relationship

indirect relationship

As elevation increases, air pressure decreases.

**70** [1] Allow 1 credit for **100%** relative humidity.

**71** [1] Allow 1 credit for **troposphere**.

**72** [1] Allow 1 credit for a correct response. Acceptable responses range from  $7.0 \times 10^{-5}$  to  $5.0 \times 10^{-2}$  according to the *Earth Science Reference Tables*. Acceptable responses include, but are not limited to, these examples:

0.0001 or 0.001 or 0.01

$10^{-4}$  or  $10^{-3}$  or  $10^{-2}$

**73** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, this example:

An increase in global temperatures will cause glaciers and continental ice sheets to gradually melt.

**74** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

Pass a law to limit greenhouse gas emissions.

Stop burning the rain forests.

Increase car pool/mass transit use.

**75** [1] Allow 1 credit for **siltstone**.

**76** [1] Allow 1 credit for **pumice**.

**77** [1] Allow 1 credit for *two* correct responses. Acceptable responses include, but are not limited to, these examples:

Granite is lighter in color than gabbro.

Granite is less dense than gabbro.

Granite's composition is more felsic, while gabbro's composition is more mafic.

Granite contains the minerals potassium feldspar and quartz; gabbro does not.

**78** [1] Allow 1 credit for **gneiss**.

**79** [2] **a** Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

large ocean wave or series of ocean waves generated by an earthquake

wave caused by an earthquake

**Note:** Accept the commonly used term *tidal wave*, but do *not* accept the response that tsunamis are caused by tides.

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

flooding

bringing in sand deposits

destruction of coastal property

**80 [2] a** Allow 1 credit for **Juan de Fuca** Plate and **North American** Plate.

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

subduction zone

convergent plate boundary

*or*

Allow 1 credit for a response that is consistent with the student's answer for 80a.

**Note:** Do *not* allow credit for thrust faults.





# Regents Examination in Physical Setting/Earth Science – August 2003

## CHART FOR DETERMINING THE FINAL EXAMINATION SCORE (USE FOR AUGUST 2003 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 84.

### 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
85	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	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	97	96	95	95	95	94	94	94	93	93	92	92	91	90	90	89	88	88	87	86	85	84	83	82
	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	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	96	95	94	93	93	93	92	92	91	91	91	90	89	89	88	87	87	86	85	84	84	83	82	81
	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	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	94	93	92	92	91	91	91	90	90	89	89	88	88	87	86	86	85	84	84	83	82	81	80	79
	74	93	92	91	91	90	90	90	89	89	88	88	87	87	86	86	85	84	83	83	82	81	80	79	78
73	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	90	89	89	89	88	88	88	87	87	86	86	85	85	84	83	83	82	81	80	79	78	77	77
70	70	91	90	88	88	88	88	87	87	86	86	85	85	84	84	83	82	82	81	80	79	78	78	77	76
	69	90	89	88	87	87	87	86	86	86	85	85	84	83	83	82	82	81	80	79	78	78	77	76	75
	68	89	88	87	86	86	86	85	85	85	84	84	83	83	82	81	81	80	79	78	78	77	76	75	74
67	67	88	87	86	86	85	85	85	84	84	83	83	82	82	81	80	80	79	78	78	77	76	75	74	73
	66	88	87	86	86	85	85	85	84	84	83	83	82	82	81	80	80	79	78	78	77	76	75	74	73
	65	87	86	85	85	84	84	84	83	83	82	82	81	81	80	80	79	78	78	77	76	75	74	73	72
64	64	86	85	84	84	84	83	83	83	82	82	81	81	80	79	79	78	77	77	76	75	74	73	72	71
	63	86	85	83	83	83	82	82	82	81	81	80	80	79	79	78	77	77	76	75	74	73	72	72	71
	62	85	84	82	82	82	82	81	81	80	80	79	79	78	78	77	76	76	75	74	73	72	72	71	70
61	61	84	83	82	81	81	81	80	80	80	79	79	78	77	77	76	76	75	74	73	72	72	71	70	69
	60	83	82	81	80	80	80	80	79	79	78	78	77	77	76	75	75	74	73	72	72	71	70	69	68
	59	82	81	80	80	79	79	79	78	78	77	77	76	76	75	75	74	73	72	72	71	70	69	68	67
58	58	81	80	79	79	79	78	78	77	77	77	76	76	75	74	74	73	72	72	71	70	69	68	67	66
	57	80	79	78	78	78	77	77	77	76	76	75	75	74	73	73	72	71	71	70	69	68	67	66	65
	56	80	79	77	77	77	76	76	76	75	75	74	74	73	73	72	71	71	70	69	68	67	66	66	65
55	55	79	78	77	76	76	76	75	75	74	74	74	73	72	72	71	70	70	69	68	67	66	65	64	
	54	78	77	76	75	75	75	74	74	74	73	73	72	72	71	70	70	69	68	67	67	66	65	64	63
	53	76	75	74	74	73	73	73	72	72	71	71	70	70	69	69	68	67	66	66	65	64	63	62	61
52	52	75	74	73	73	73	72	72	71	71	71	70	70	69	68	68	67	66	66	65	64	63	62	61	60
	51	75	73	72	72	72	71	71	71	70	70	69	69	68	68	67	66	66	65	64	63	62	61	60	60
	50	74	73	71	71	71	71	70	70	69	69	68	68	67	67	66	65	65	64	63	62	61	61	60	59
49	49	73	72	71	70	70	70	69	69	69	68	68	67	66	66	65	65	64	63	62	61	61	60	59	58
	48	72	71	70	69	69	69	68	68	68	67	67	66	66	65	64	64	63	62	61	61	60	59	58	57
	47	71	70	69	69	68	68	68	67	67	66	66	65	65	64	63	63	62	61	61	60	59	58	57	56
46	46	70	69	68	68	67	67	67	66	66	65	65	64	64	63	63	62	61	61	60	59	58	57	56	55
	45	69	68	66	66	66	65	65	65	64	64	63	63	62	62	61	60	60	59	58	57	56	55	54	54
	44	68	67	65	65	65	65	64	64	63	63	62	62	61	61	60	59	59	58	57	56	55	54	53	53

# Regents Examination in Physical Setting/Earth Science – August 2003

## CHART FOR DETERMINING THE FINAL EXAMINATION SCORE (USE FOR AUGUST 2003 EXAMINATION ONLY.)

### 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
<b>Total Written Test Score</b>	43	67	66	65	64	64	64	63	63	63	62	62	61	60	60	59	59	58	57	56	55	55	54	53	52
	42	66	65	64	63	63	63	63	62	62	61	61	60	60	59	58	58	57	56	55	55	54	53	52	51
	41	64	63	62	62	62	61	61	60	60	60	59	59	58	57	57	56	55	55	54	53	52	51	50	49
	40	63	62	61	61	61	60	60	60	59	59	58	58	57	56	56	55	54	54	53	52	51	50	49	48
	39	63	62	60	60	60	59	59	59	58	58	57	57	56	56	55	54	54	53	52	51	50	49	49	48
	38	62	61	60	59	59	59	58	58	57	57	57	56	55	55	54	53	53	52	51	50	50	49	48	47
	37	60	59	58	58	57	57	57	56	56	55	55	54	54	53	52	52	51	50	50	49	48	47	46	45
	36	59	58	57	57	56	56	56	55	55	54	54	53	53	52	52	51	50	49	49	48	47	46	45	44
	35	58	57	56	56	56	55	55	54	54	54	53	53	52	51	51	50	49	49	48	47	46	45	44	43
	34	58	56	55	55	55	54	54	54	53	53	52	52	51	51	50	49	49	48	47	46	45	44	43	43
	33	56	55	54	53	53	53	52	52	52	51	51	50	49	49	48	48	47	46	45	44	44	43	42	41
	32	55	54	53	52	52	52	51	51	51	50	50	49	49	48	47	47	46	45	44	44	43	42	41	40
	31	54	53	52	52	51	51	51	50	50	49	49	48	48	47	46	46	45	44	44	43	42	41	40	39
	30	52	51	50	50	50	49	49	49	48	48	47	47	46	45	45	44	43	43	42	41	40	39	38	37
	29	52	51	49	49	49	48	48	48	47	47	46	46	45	45	44	43	43	42	41	40	39	38	38	37
	28	51	50	48	48	48	48	47	47	46	46	45	45	44	44	43	42	42	41	40	39	38	38	37	36
	27	49	48	47	46	46	46	46	45	45	44	44	43	43	42	41	41	40	39	38	38	37	36	35	34
	26	48	47	46	46	45	45	45	44	44	43	43	42	42	41	41	40	39	38	38	37	36	35	34	33
	25	46	45	44	44	44	43	43	43	42	42	41	41	40	39	39	38	37	37	36	35	34	33	32	31
	24	46	45	43	43	43	42	42	42	41	41	40	40	39	39	38	37	37	36	35	34	33	32	32	31
	23	45	44	43	42	42	42	41	41	40	40	40	39	38	38	37	36	36	35	34	33	33	32	31	30
	22	43	42	41	41	40	40	40	39	39	38	38	37	37	36	35	35	34	33	33	32	31	30	29	28
	21	42	41	40	40	39	39	39	38	38	37	37	36	36	35	35	34	33	32	32	31	30	29	28	27
	20	41	39	38	38	38	37	37	37	36	36	35	35	34	34	33	32	32	31	30	29	28	27	26	26
	19	40	39	37	37	37	37	36	36	35	35	34	34	33	33	32	31	31	30	29	28	27	27	26	25
	18	38	37	36	35	35	35	34	34	34	33	33	32	32	31	30	30	29	28	27	27	26	25	24	23
	17	37	36	35	35	34	34	34	33	33	32	32	31	31	30	29	29	28	27	27	26	25	24	23	22
	16	35	34	33	33	33	32	32	32	31	31	30	30	29	28	28	27	26	26	25	24	23	22	21	20
	15	35	34	32	32	32	31	31	31	30	30	29	29	28	28	27	26	26	25	24	23	22	21	21	20
	14	34	33	31	31	31	31	30	30	29	29	28	28	27	27	26	25	25	24	23	22	21	21	20	19
	13	32	31	30	29	29	29	29	28	28	27	27	26	26	25	24	24	23	22	21	21	20	19	18	17
	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	29	28	27	27	27	26	26	26	25	25	24	24	23	22	22	21	20	20	19	18	17	16	15	14
	10	28	27	26	25	25	25	24	24	23	23	23	22	21	21	20	19	19	18	17	16	16	15	14	13
	9	27	26	25	24	24	24	23	23	23	22	22	21	21	20	19	19	18	17	16	16	15	14	13	12
	8	25	24	23	23	22	22	22	21	21	20	20	19	19	18	18	17	16	15	15	14	13	12	11	10
	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	23	22	20	20	20	20	19	19	18	18	17	17	16	16	15	14	14	13	12	11	10	10	9	8
	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	20	19	18	18	17	17	17	16	16	15	15	14	14	13	12	12	11	10	10	9	8	7	6	5
	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

<b>August 2003 Physical Setting/ Earth Science</b>			
<b>Question Numbers</b>			
Key Ideas/Performance Indicators	Part A	Part B	Part C
<b>Standard 1</b>			
Math Key Idea 1	33	54,56	65,67
Math Key Idea 2	27	36,51	65,70,71
Math Key Idea 3	3	60	
Sci. Inq. Key Idea 1	21,22,25	41,42,43,50,61	66,69,73,79a,79b
Sci. Inq. Key Idea 2			
Sci. Inq. Key Idea 3	1,3,4,6,7,8,9, 10,11,13,15,19, 20,28,29,30	36,40,43,44,47, 48,52,53,54, 57a,59,62	65,69,71,72,75, 76,77,78,79a,79b, 80a,80b
Eng. Des. Key Idea 1			74
<b>Standard 2</b>			
Key Idea 1	26	37,38,39,53	68
Key Idea 2			
Key Idea 3			
<b>Standard 6</b>			
Key Idea 1		46,55,56,57b, 63	66
Key Idea 2	3,4,10,13,19	40,43,52,55,61	64
Key Idea 3		51,58,59,60,61, 62	72
Key Idea 4		36	74
Key Idea 5	8,11,15,20	38,39,41,44,45, 48,49,50,53,58	67
Key Idea 6			64,74
<b>Standard 7</b>			
Key Idea 1			74
Key Idea 2			
<b>Standard 4</b>			
Performance Indicator 1	1,3,4,5,8,9,11, 27,29,30,31,34	36,43,44,45,46, 47,48,49,52,53, 54	64,65,66
Performance Indicator 2	2,7,10,12,13, 14,15,16,17,18, 19,20,22,24,25, 26,28,35	37,38,39,40,41, 42,50,55,56,57, 58,59,60,61,62, 63	67,68,69,70,71, 72,73,74,79a,79b, 80a,80b
Performance Indicator 3	21,32		75,76,77,78
<b>Reference Tables</b>			
ESRT 2001 edition	1,6,7,12,14,17, 19,23,26,27,28, 29,30,32,33,35	38,46,47,51,55, 56,57,58,63	65,71,72,75,76, 77,78,80a,80b