

FOR TEACHERS ONLY

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

PS-ES PHYSICAL SETTING/EARTH SCIENCE

Tuesday, August 13, 2002 — 12:30 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 1	13 3	25 1	36 4	44 3
2 3	14 4	26 1	37 2	45 3
3 1	15 1	27 2	38 2	46 3
4 2	16 2	28 4	39 2	47 2
5 3	17 2	29 3	40 4	48 3
6 4	18 4	30 4	41 1	49 1
7 2	19 4	31 1	42 3	50 2
8 3	20 2	32 3	43 2	
9 1	21 1	33 3		
10 1	22 3	34 4		
11 4	23 4	35 4		
12 3	24 1			

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.

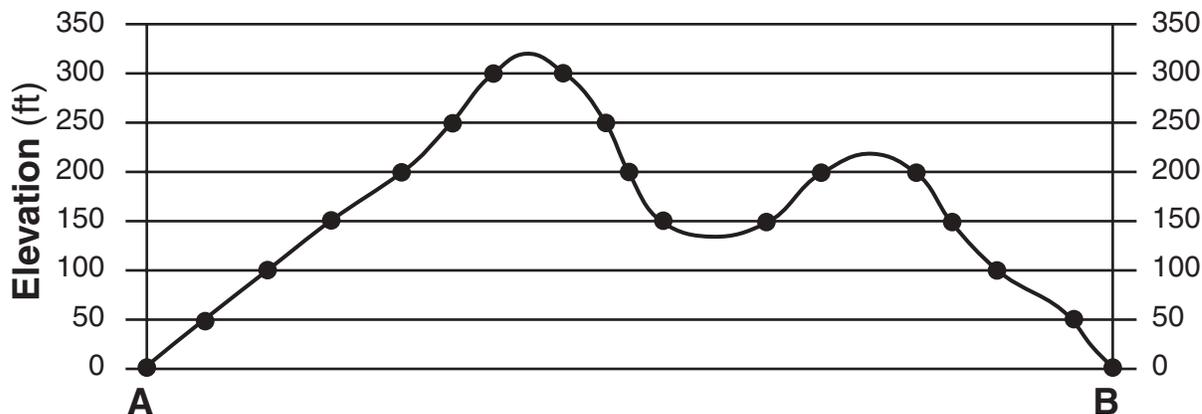
All student answer papers that receive a scaled score of 60 through 64 **must** be scored a second time. For the second scoring, a different committee of teachers may score the student's paper or the original committee may score the paper, except that no teacher may score the same open-ended questions 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 [3]



a Allow 2 credits if 15 to 18 points are plotted correctly on the elevation line (within ± 2.5 mm horizontally).

Allow only 1 credit if only 7 to 14 points are plotted correctly on the elevation line (within ± 2.5 mm horizontally).

Note: Allow credit if the student uses some other symbol instead of dots.

b Allow 1 credit for drawing a smooth, curved line that shows hilltops above the horizontal elevation lines and valleys extending below the horizontal elevation lines. Do *not* allow credit for flat hilltops or flat valleys drawn exactly on the horizontal elevation line.

Hilltops' elevations should be between 300 and 325, and 200 and 250. The valley-bottom elevation should be between 100 and 150.

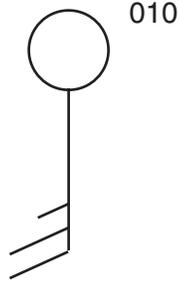
or

If the points have been plotted incorrectly, the hilltops should be drawn so that the peaks are within the interval above the highest plotted elevations and the valley is within the interval below the lowest plotted valley elevation.

52 [1] Allow 1 credit for **25** ft/mi (± 1).

53 [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, this example:
Barringer Crater was caused by the impact of a meteorite (or meteor or comet or asteroid).

54 [3]



Allow 1 credit if the student places the correct symbol for air pressure in the appropriate position. Do *not* allow this credit if the decimal point or units are given.

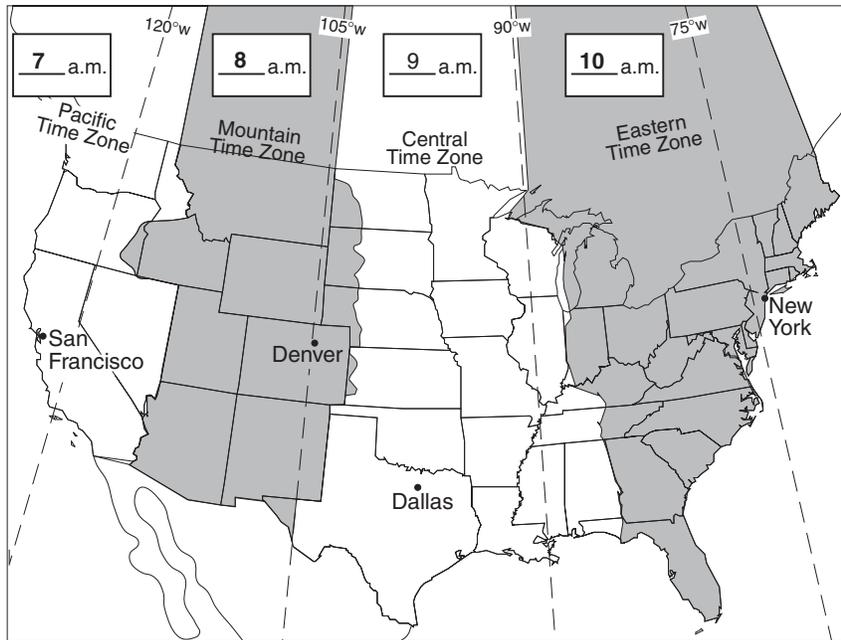
and

Allow 1 credit if the student draws the correct symbol for wind direction.

and

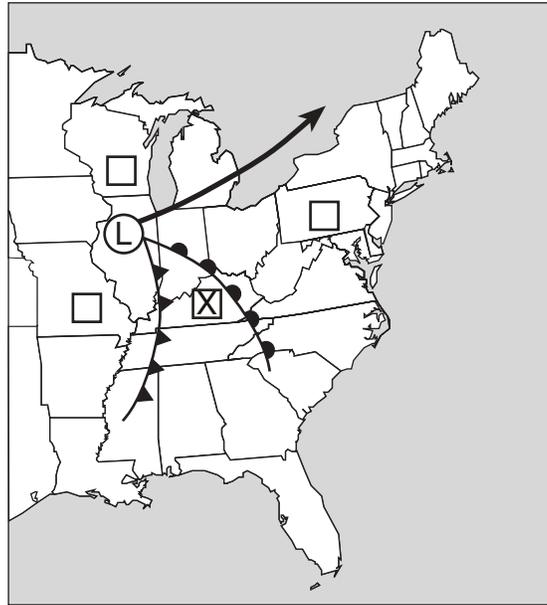
Allow 1 credit for the correct symbol for wind speed. Feathers may be placed on either side of the staff.

55 [1]



Allow 1 credit for all three times indicated correctly. Pacific is 7 a.m.; Mountain is 8 a.m.; and Eastern is 10 a.m.

56 [2]



- a** Allow 1 credit if the **X** is located in the area behind the warm front but ahead of the cold front even if the **X** is not placed in the box.
- b** Allow 1 credit if the arrow indicates the normal storm track to be toward the northeast. Allow credit if the arrow points to any compass direction in between east and north-northeast.

57 [2] Allow 2 credits for correctly identifying all three minerals: **plagioclase feldspar**, **biotite**, and **amphibole**.

Allow only 1 credit for correctly identifying only two of the three minerals.

Note: Do *not* accept pyroxene because it is not found with quartz.

58 [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

- weathering
- erosion
- deposition

59 [1] Allow 1 credit for **siltstone** or **conglomerate** or **limestone**.

Part C

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

- 60** [2] Allow 2 credits for **granite** and for an answer describing the greater hardness of the minerals found in granite. Acceptable responses include, but are not limited to, this example:

Granite is composed mainly of quartz and feldspar that are resistant to abrasion because of their hardness (7 and 6, respectively), while marble is made of calcite, which is softer (hardness of 3).

Allow only 1 credit if granite is chosen but the explanation is not acceptable.

Allow no credit if the student chooses marble.

- 61** [1] Allow 1 credit for **Pleistocene** epoch.

- 62** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

The half-life of radioactive carbon is shorter.

Radioactive carbon-14 is found in recent organic remains.

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

ellipse

oval

elliptical with the Sun at one focus

Note: Do *not* accept circle, sphere, or egg shaped.

- 64** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

early winter

winter

Note: Do *not* accept January or any other month.

- 65** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

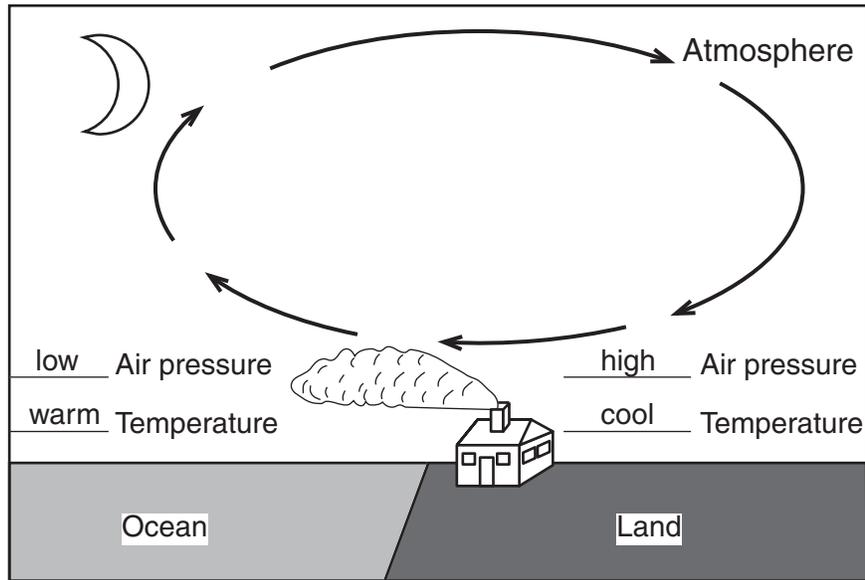
As Earth moves from perihelion to aphelion, the apparent size decreases.

The Sun appears smaller.

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

As Earth moves from perihelion to aphelion, the orbital velocity decreases.
 As distance of Earth from the Sun increases, orbital velocity decreases.
 an inverse relationship

- 67 and 68**



- 67** [1] Allow 1 credit for showing “high” air pressure over the land and “low” air pressure over the ocean.
- 68** [1] Allow 1 credit for showing “warm” air temperature over the ocean and “cool” air temperature over the land.
- 69** [2] Allow 1 credit for a correct response describing the general direction of circulation. Acceptable responses include, but are not limited to, this example:

counterclockwise

and

Allow 1 credit for a correct response describing the inward movement toward the eye. Acceptable responses include, but are not limited to, this example:

spirals toward the eye

- 70** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

The storm entered the prevailing southwesterly wind belt north of 30° N, which pushed it to the northeast.

The hurricane moved into a different wind belt.

71 [2] **a** Allow no credit for writing the equation.

b Allow 1 credit for correctly substituting both acceptable values into the equation given in part *a*. The student need not record the units. Acceptable responses include, but are not limited to, these examples:

$$\text{rate of change} = \frac{2,600 \text{ km}}{4 \text{ days}}$$

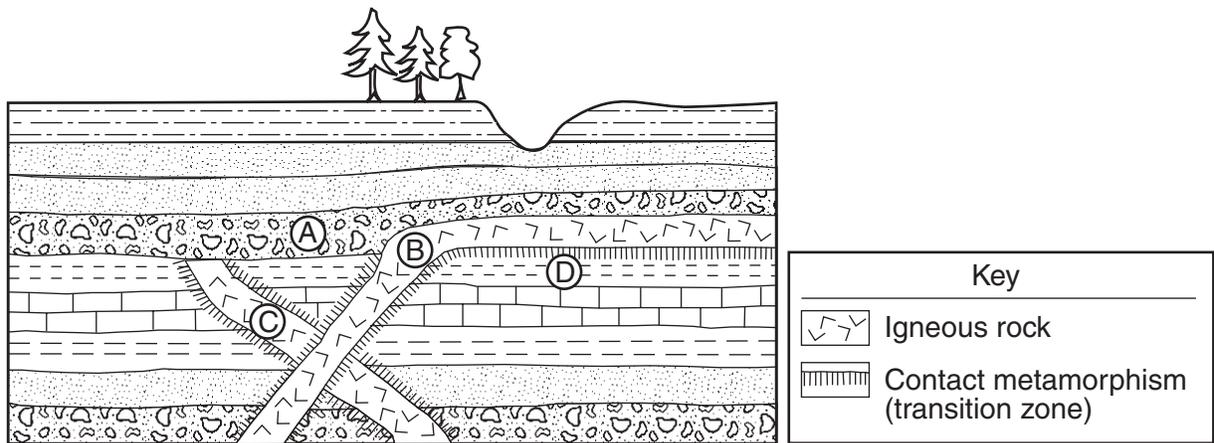
$$r = \frac{2,600 \text{ km}}{96 \text{ hr}}$$

c Allow 1 credit for correctly calculating the rate, based on the student’s answer in part *b*. Correct units must be given. Acceptable responses include, but are not limited to, these examples:

$$\text{rate of change} = 650 \frac{\text{km}}{\text{day}}$$

$$r = 27 \text{ km/hr}$$

72 [1]



Allow 1 credit for the correct placement of contact metamorphism symbols above and below *B* as shown in the diagram above.

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

C was formed before both *B* and *A*.

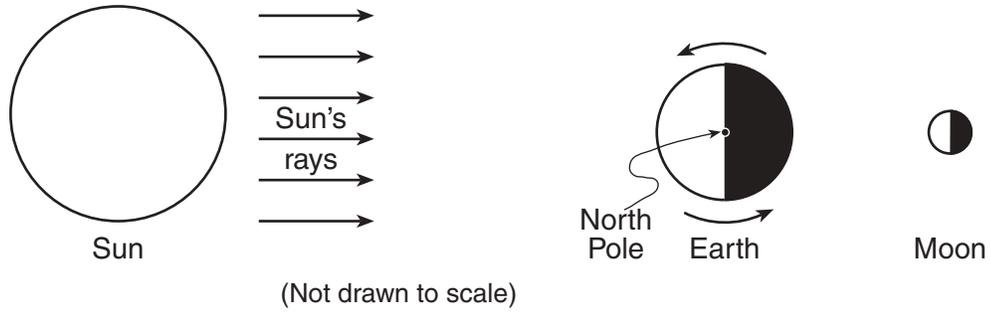
C is older than both *B* and *A*.

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

Rock *A* is a mixture of rounded rock fragments of different sizes connected together.

Rock *A* is a horizontal layer.

75 [2]



- a** Allow 1 credit for the Moon drawn on the night side of Earth directly opposite the Sun. Allow credit even if the size of the Moon is not drawn proportionally or if the Moon is not shaded or is shaded incorrectly.
- b** Allow 1 credit if the arrow or arrows clearly show Earth rotating counterclockwise.

Regents Examination in Physical Setting/Earth Science — August 2002

Chart for Determining the Final Examination Score

(Use for August 2002 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 86.

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

Regents Examination in Physical Setting/Earth Science — August 2002
Chart for Determining the Final Examination Score
(Use for August 2002 examination only.)

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	43	70	69	68	68	67	67	67	66	66	65	65	64	64	63	63	62	61	61	60	59	58	57	56	55
	42	69	68	66	66	66	65	65	65	64	64	63	63	62	62	61	60	60	59	58	57	56	55	55	54
	41	68	67	65	65	65	65	64	64	63	63	62	62	61	61	60	59	59	58	57	56	55	55	54	53
	40	67	66	65	64	64	64	63	63	63	62	62	61	60	60	59	59	58	57	56	55	55	54	53	52
	39	66	65	64	63	63	63	63	62	62	61	61	60	60	59	58	58	57	56	55	55	54	53	52	51
	38	65	64	63	63	62	62	62	61	61	60	60	59	59	58	58	57	56	55	55	54	53	52	51	50
	37	63	62	61	61	61	60	60	60	59	59	58	58	57	56	56	55	54	54	53	52	51	50	49	48
	36	63	62	60	60	60	59	59	59	58	58	57	57	56	56	55	54	54	53	52	51	50	49	49	48
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	34	61	60	59	58	58	58	57	57	57	56	56	55	55	54	53	53	52	51	50	50	49	48	47	46
	33	59	58	57	57	56	56	56	55	55	54	54	53	53	52	52	51	50	49	49	48	47	46	45	44
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	28	54	53	52	52	51	51	51	50	50	49	49	48	48	47	46	46	45	44	44	43	42	41	40	39
	27	52	51	50	50	50	49	49	49	48	48	47	47	46	45	45	44	43	43	42	41	40	39	38	37
	26	52	51	49	49	49	48	48	48	47	47	46	46	45	45	44	43	43	42	41	40	39	38	38	37
	25	50	49	48	47	47	47	46	46	46	45	45	44	43	43	42	42	41	40	39	38	38	37	36	35
	24	49	48	47	46	46	46	46	45	45	44	44	43	43	42	41	41	40	39	38	38	37	36	35	34
	23	47	46	45	45	45	44	44	43	43	43	42	42	41	40	40	39	38	38	37	36	35	34	33	32
	22	46	45	44	44	44	43	43	43	42	42	41	41	40	39	39	38	37	37	36	35	34	33	32	31
	21	46	45	43	43	43	42	42	42	41	41	40	40	39	39	38	37	37	36	35	34	33	32	32	31
	20	44	43	42	41	41	41	40	40	40	39	39	38	38	37	36	36	35	34	33	33	32	31	30	29
	19	42	41	40	40	39	39	39	38	38	37	37	36	36	35	35	34	33	32	32	31	30	29	28	27
	18	41	40	39	39	39	38	38	37	37	37	36	36	35	34	34	33	32	32	31	30	29	28	27	26
	17	40	39	37	37	37	37	36	36	35	35	34	34	33	33	32	31	31	30	29	28	27	27	26	25
	16	39	38	37	36	36	36	35	35	35	34	34	33	32	32	31	31	30	29	28	27	27	26	25	24
	15	37	36	35	35	34	34	34	33	33	32	32	31	31	30	29	29	28	27	27	26	25	24	23	22
	14	36	35	34	34	33	33	33	32	32	31	31	30	30	29	29	28	27	27	26	25	24	23	22	21
	13	35	34	32	32	31	31	31	30	30	29	29	28	28	27	26	26	25	24	23	22	21	21	20	20
	12	33	32	31	30	30	30	29	29	29	28	28	27	26	26	25	25	24	23	22	21	21	20	19	18
	11	32	31	30	29	29	29	29	28	28	27	27	26	26	25	24	24	23	22	21	21	20	19	18	17
	10	30	29	28	28	28	27	27	26	26	26	25	25	24	23	23	22	21	21	20	19	18	17	16	15
	9	29	28	26	26	26	25	25	25	24	24	23	23	22	22	21	20	20	19	18	17	16	15	15	14
	8	27	26	25	24	24	24	23	23	23	22	22	21	21	20	19	19	18	17	16	16	15	14	13	12
	7	26	25	24	24	23	23	23	22	22	21	21	20	20	19	18	18	17	16	16	15	14	13	12	11
	6	24	23	22	22	22	21	21	20	20	20	19	19	18	17	17	16	15	15	14	13	12	11	10	9
	5	23	22	20	20	20	20	19	19	18	18	17	17	16	16	15	14	14	13	12	11	10	9	8	8
	4	21	20	19	18	18	18	17	17	17	16	16	15	15	14	13	13	12	11	10	10	9	8	7	6
	3	20	19	18	18	17	17	17	16	16	15	15	14	14	13	12	12	11	10	10	9	8	7	6	5
	2	18	17	16	16	16	15	15	15	14	14	13	13	12	11	11	10	9	9	8	7	6	5	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

August 2002 Physical Setting/Earth Science			
Question Numbers			
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