

FOR TEACHERS ONLY

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

PS-ES PHYSICAL SETTING/EARTH SCIENCE

Friday, June 18, 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.

Updated information regarding the rating of this examination may be posted on the New York State Education Department's web site during the rating period. Visit the site <http://www.emsc.nysed.gov/osa/> and select the link "Latest Information" for any recently posted information regarding this examination. This site should be checked before the rating process for this examination begins and at least one more time before the final scores for the examination are recorded.

Part A and Part B-1
Allow 1 credit for each correct response.

Part A			Part B-1	
1 3	13 1	25 3	36 1	44 4
2 2	14 2	26 4	37 1	45 2
3 3	15 1	27 3	38 3	46 1
4 2	16 3	28 3	39 1	47 2
5 3	17 3	29 2	40 4	48 2
6 3	18 2	30 3	41 4	49 1
7 1	19 2	31 4	42 1	50 3
8 1	20 1	32 2	43 4	
9 1	21 1	33 1		
10 4	22 2	34 3		
11 2	23 4	35 3		
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 that will be posted on the Department's web site <http://www.emsc.nysed.gov/osa/> on Friday, June 18, 2004. 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** [2] Allow 2 credits for four or five correct responses.

Allow only 1 credit for only two or three correct responses.

The correct responses are shown below.

Air pressure: **1009.6** mb

Air temperature: **46°F**

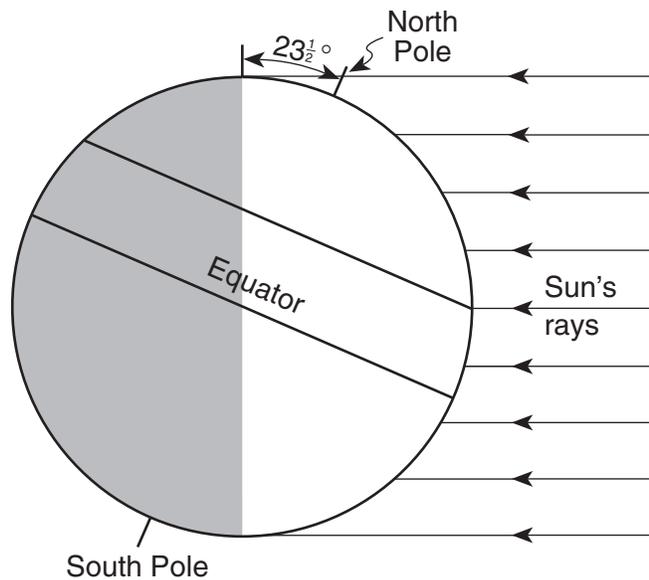
Amount of precipitation during last six hours: **0.15** or **.15** inch

Cloud cover: **75%**

Present weather: **rain**

Note: Do *not* allow credit for “precipitation” as the response to “present weather” because it is too general.

- 52** and **53** The correct responses are shown below.

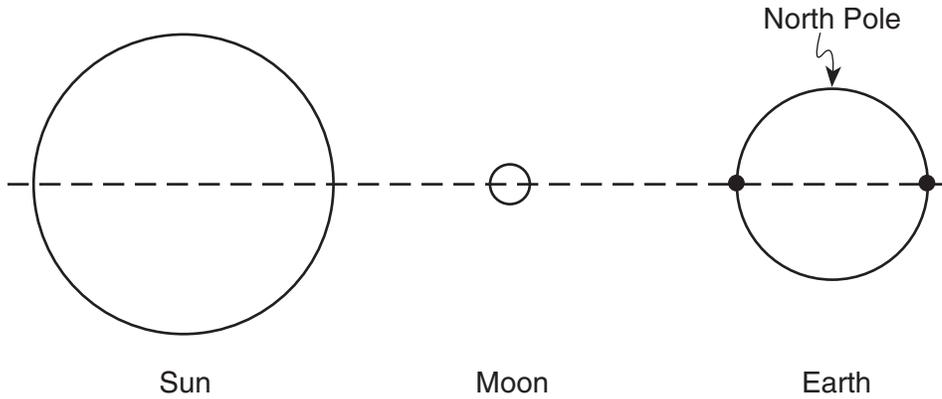


- 52** [1] Allow 1 credit for correctly shading the half of Earth that faces away from the Sun.

- 53** [1] Allow 1 credit for drawing a line approximately parallel to the Equator starting from a point within 2 millimeters of the intersection of the labeled Sun's ray and Earth's surface.

54 [1] Allow 1 credit for **June**.

55 [1] Allow 1 credit for the correct response shown below that shows two dots within 2 millimeters of the intersection of the dashed line and Earth’s surface.

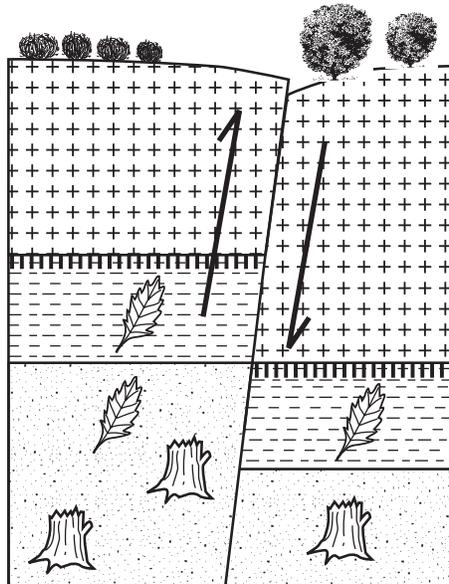


(Not drawn to scale)

56 [1] Allow 1 credit for the correct response shown below.

- Brightest: (a) ***Betelgeuse***
 (b) ***Polaris***
 (c) ***Aldebaran***
 (d) ***Sirius***
 Least Bright: (e) **the Sun**

57 [1] Allow 1 credit if both arrows are correct, as shown in the diagram below, or if the student draws only one arrow and it points in the correct direction for that side of the fault.



58 [1] Allow 1 credit for **1.7** (± 0.2) meters.

59 [1] Allow 1 credit for the correct response shown below.

4 The fault was formed.

2 The shale was deposited.

3 The vesicular basalt was formed.

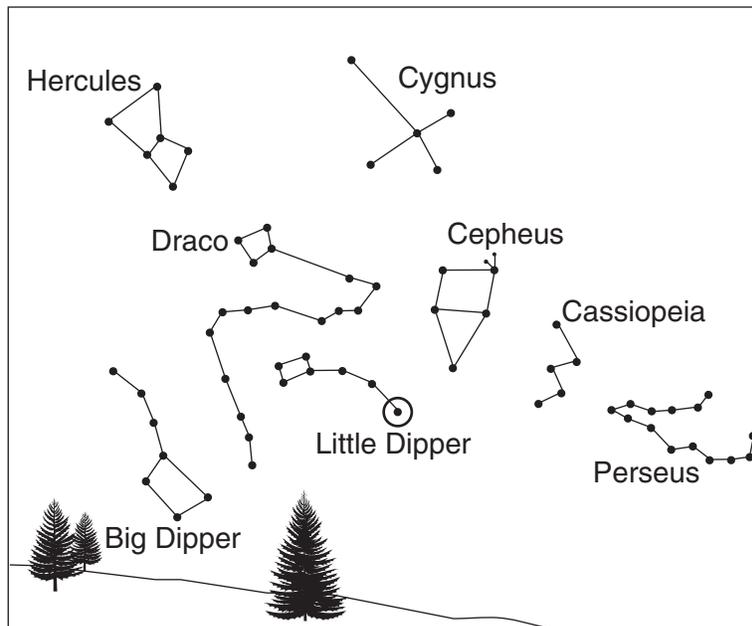
1 The sandstone was deposited.

60 [1] Allow 1 credit for any response from 33.7 to 24 million years.

61 [1] Allow 1 credit for $\frac{1}{32}$ or **0.03125** half-lives.

62 [1] Allow 1 credit for correctly circling *Polaris*, as shown in the diagram below.

Diagram 2 — 11:00 p.m.



63 [1] Allow 1 credit for **north**.

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

Hercules: down and to the left (west)

to the left

counterclockwise

and

Perseus: up and to the right (east)

upward

counterclockwise

Part C

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

- 65** [2] Allow 1 credit for correctly identifying the material. Acceptable responses include, but are not limited to, these examples:

plant remains
peat
wood
trees

and

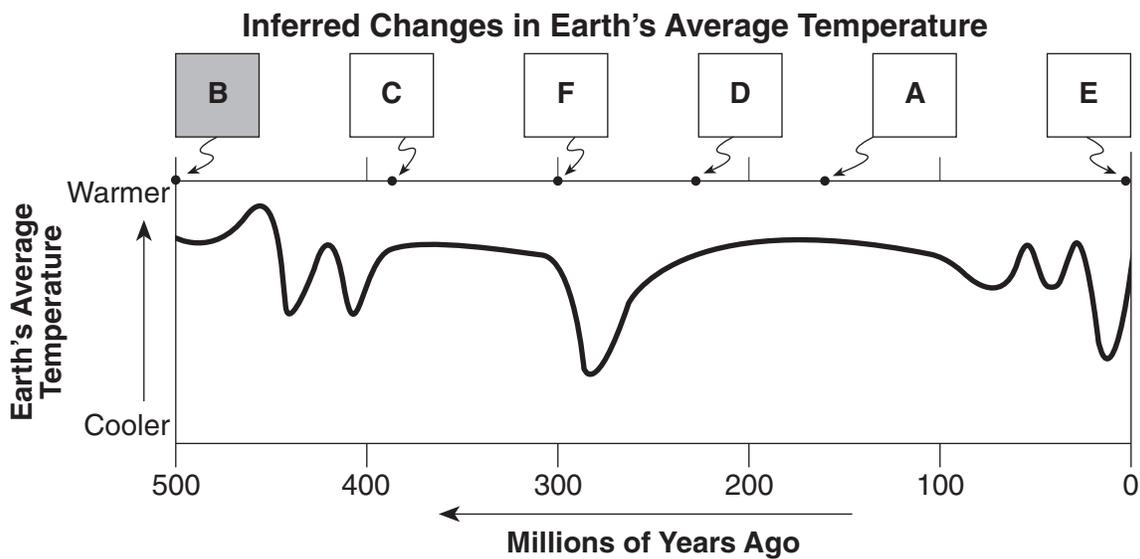
Allow 1 credit for correctly naming/describing *two* processes. Acceptable responses include, but are not limited to, these examples:

burial
compaction
deposition
decomposition
heat
pressure

- 66** [2] Allow 2 credits for four or five correct student responses.

Allow only 1 credit for only two or three correct student responses.

The correct responses are shown below.



- 67** [2] Allow 1 credit for a correct response for factor A. Acceptable responses include, but are not limited to, this example:

Effect on Earth’s temperature: increase

Why temperature changes: More outgoing infrared radiation is trapped by Earth’s atmosphere.

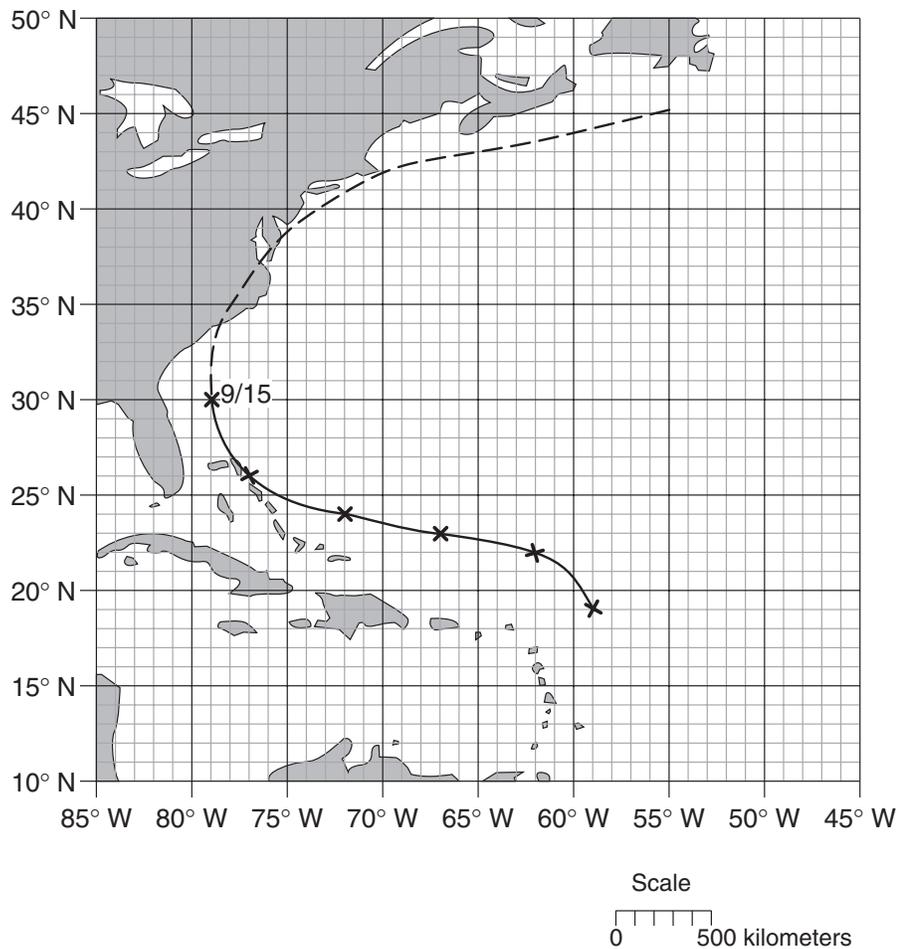
and

Allow 1 credit for a correct response for factor B. Acceptable responses include, but are not limited to, this example:

Effect on Earth’s temperature: decrease

Why temperature changes: More sunlight is reflected away from Earth.

- 68** and **69** The correct responses are shown below.

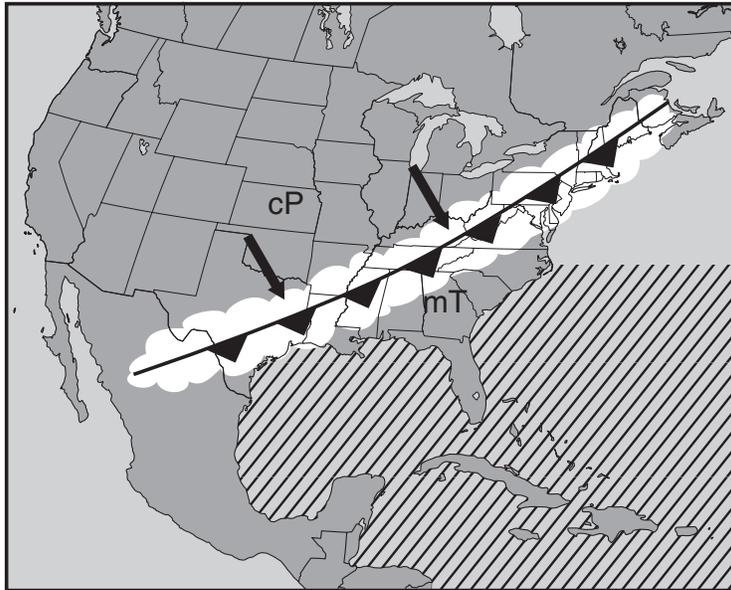


- 68** [1] Allow 1 credit if five or six of the student’s **X**s are plotted within $\pm 1^\circ$ of the stated positions and are correctly connected with a line.

- 69** [1] Allow 1 credit for a correctly drawn line, even if it is not dashed. The line should end heading between north and east. Allow credit even if the starting point for the student answer is incorrect or unlabeled, but the drawn line ends heading between north and east above 30° N latitude.

- 70 [1] Allow 1 credit for **barometer** or **barograph**.
- 71 [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, this example:
As the air pressure in the hurricane gets lower, the wind speed increases.

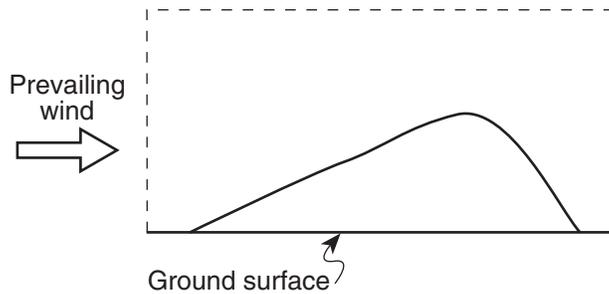
72 and 73 The correct responses are shown below.



- 72 [1] Allow 1 credit for drawing the cold front symbol in the correct location. Allow credit even if the symbol is not shaded.
- 73 [1] Allow 1 credit for an **X** located over the water in the diagonally lined area.
- 74 [1] Allow 1 credit if *all* four plates are correctly named. The correct responses are shown below.
- (1) **South American Plate**
 - (2) **Cocos Plate**
 - (3) **Caribbean Plate**
 - (4) **Nazca Plate**
- 75 [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- mass movement of mud down the mountain
 - a mud avalanche
 - It melted snow, causing mudslides.
 - Hot ash and pumice melted snow, creating landslides.

- 76** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- a drop in pressure on the magma
 - Steam and gases that were dissolved in the magma violently expanded.
 - Cracks in Earth’s crust lowered pressure on the magma.
 - Magma pressure cracked the overlying rocks, releasing the gases.
- 77** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- Escaping gas bubbles are trapped in the rapidly cooling magma.
 - Gas/air pockets form in the rock as it cools.
- 78** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- Hawaiian magma is mafic and the magma of the Nevado del Ruiz volcano is andesitic.
 - Hawaiian magma is runny and the magma of Nevado del Ruiz is thick and slow moving.
 - Hawaii is located at a hot spot in the center of the Pacific Plate. Nevado del Ruiz is near a subduction plate boundary.
- 79** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:
- Geologists should monitor conditions and provide early warning.
 - People should leave their houses when early warning of an eruption is given.
 - Avoid building homes in valleys.
 - People should be discouraged from building near the volcano.
 - Evacuation routes should be publicized.
 - Predicted mudslide routes should be identified.

- 80** [1] Allow 1 credit for a correct profile, showing both the windward and leeward sides of the same dune, *and* showing the steepest gradient on the leeward side. Acceptable responses include, but are not limited to, this example:



- 81** [1] Allow 1 credit for a correct response. Acceptable responses include, but are not limited to, these examples:

The calcite cement would be chemically weathered and removed by infiltrating water.
It would be dissolved.
It will bubble.

The *Chart for Determining the Final Examination Score for the June 2004 Regents Examination in Physical Setting/Earth Science* will be posted on the Department's web site <http://www.emsc.nysed.gov/osa/> on Friday, June 18, 2004. Conversion charts provided for previous administrations of the Regents Examination in Physical Setting/Earth Science must NOT be used to determine students' final scores for this administration.

Map to Core Curriculum

June 2004 Physical Setting/Earth Science			
Question Numbers			
Key Ideas/Performance Indicators	Part A	Part B	Part C
Standard 1			
Math Key Idea 1	26,32	43	68
Math Key Idea 2	4,11,18,27,33	61	
Math Key Idea 3			
Sci. Inq. Key Idea 1	19,20,22,24	45,63,64	67
Sci. Inq. Key Idea 2		51	
Sci. Inq. Key Idea 3	2,4,8,9,10,11, 12,14,16,21,22, 23,25,26,27,29, 30,32,33,34,35	39,40,43,44,50, 56,60	66,69,72,73,74, 75,76,77,78
Eng. Des. Key Idea 1			70
Standard 2			
Key Idea 1	31		
Key Idea 2			
Key Idea 3			
Standard 6			
Key Idea 1	24		80
Key Idea 2	10,17,19	36,37,38,41,42, 45,46,47,48,51, 52,53,54,55,59, 62,63	65,66,68,72,73, 80,81
Key Idea 3	10,32	41,42,57,58,60	
Key Idea 4		38	
Key Idea 5	34	38,47,49,55,64	69,71,78
Key Idea 6			
Standard 7			
Key Idea 1			
Key Idea 2		49	79
Standard 4			
Performance Indicator 1	1,3,4,5,7,8,9, 10,14,15,18,21, 22,23,32	36,37,38,40,52, 53,54,55,56,57, 58,59,60,61,62, 63,64	66,68,81
Performance Indicator 2	2,6,11,12,13, 14,16,17,19,20, 24,25,26,27,28, 30,31,34,35	39,41,42,43,44, 45,46,47,48,49, 50,51	65,67,68,69,70, 71,72,73,74,75, 76,77,78,79,80,81
Performance Indicator 3	29,30,33		65,77,81
Reference Tables			
ESRT 2001 Edition	2,3,4,8,9,10,12, 14,16,21,23,25, 26,27,29,30,32, 33,34,35	39,40,43,50,51, 56,60	65,66,72,74

