

FOR TEACHERS ONLY

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

PS-ES PHYSICAL SETTING/EARTH SCIENCE

Friday, August 17, 2012 — 12:30 to 3:30 p.m., only

SCORING KEY AND RATING GUIDE

Directions to the Teacher:

Refer to the directions on page 2 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. Check this web site at: <http://www.p12.nysed.gov/apda/> and select the link "Scoring Information" for any recently posted information regarding this examination. This site should be checked before the rating process for this examination begins and several times throughout the Regents Examination period.

Part A and Part B-1

Allow 1 credit for each correct response.

Part A

1 2	10 2	19 2	28 1
2 4	11 1	20 4	29 1
3 4	12 1	21 4	30 2
4 1	13 4	22 2	31 1
5 2	14 2	23 4	32 2
6 1	15 4	24 3	33 3
7 1	16 4	25 2	34 3
8 3	17 3	26 2	35 1
9 4	18 3	27 1	

Part B-1

36 2	40 1	44 4	48 3
37 1	41 3	45 4	49 2
38 4	42 4	46 3	50 3
39 2	43 1	47 2	

Directions to the Teacher

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

Do *not* attempt to correct the student's work by making insertions or changes of any kind.

Allow 1 credit for each correct response.

At least two science teachers must participate in the scoring of the Part B–2 and Part C open-ended questions on a student's paper. 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 more than approximately one-half of 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. On the student's separate answer sheet, for each question, record the number of credits earned and the teacher's assigned rater/scorer letter.

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

For hand scoring, raters should enter the scores earned in the appropriate boxes printed on the separate answer sheet. Next, the rater should add these scores and enter the total in the space provided. The student's score for the Earth Science Performance Test should be recorded in the space provided. Then the student's raw scores on the written test and the performance test should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: <http://www.p12.nysed.gov/apda/> on Friday, August 17, 2012. The student's scale score should be entered in the box labeled "Scale Score" on the student's answer sheet. The scale score is the student's final examination score.

Schools are not permitted to rescore any of the open-ended questions on this exam after each question has been rated once, regardless of the final exam score. Schools are required to ensure that the raw scores have been added correctly and that the resulting scale score has been determined accurately.

Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that for each administration, the conversion chart provided for that administration be used to determine the student's final score.

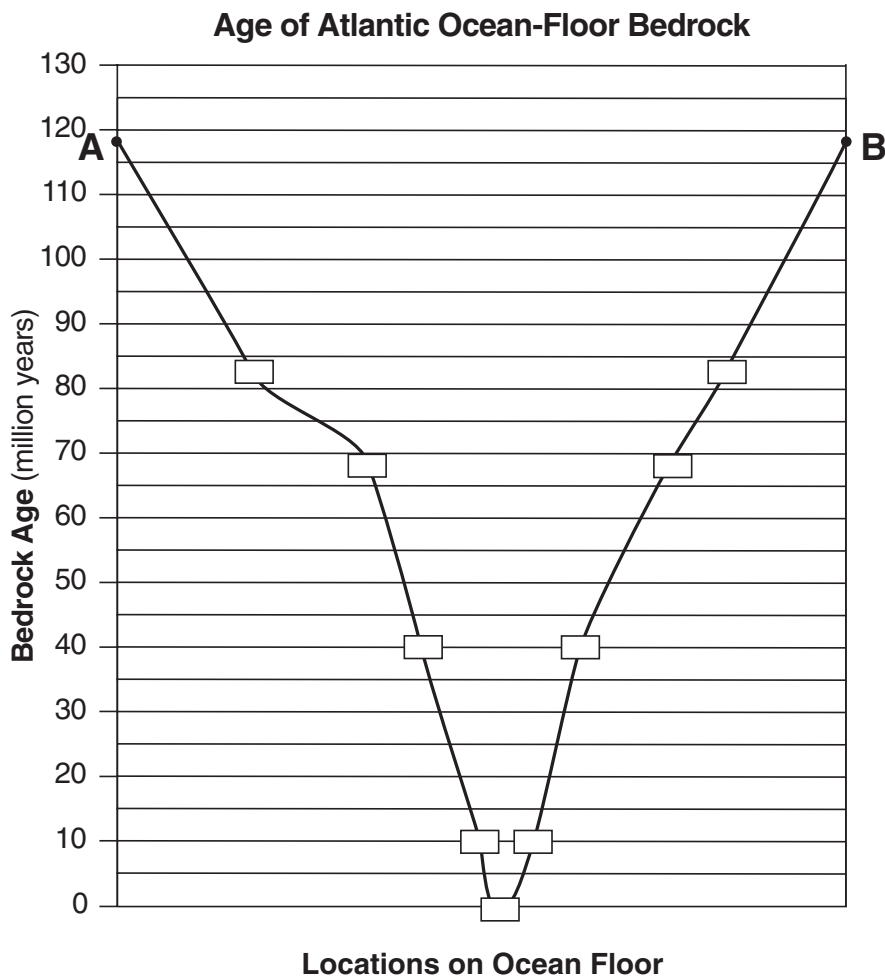
Part B–2

Allow a maximum of 15 credits for this part.

- 51** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The air travels over Lake Ontario toward Oswego, picking up moisture that results in more snow.
 - The air over Toronto contains less moisture.
 - Lake-effect storms occur on the eastern side of the lake when the wind is blowing in the direction shown.
- 52** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Old Forge is located in the mountains.
 - Higher elevations have colder temperatures.
 - Watertown is closer to a large body of water that moderates its temperature.
- 53** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Water has a higher specific heat than land.
 - Water takes a longer time to cool than land.
 - Land surfaces cool faster.
- 54** [1] Allow 1 credit for iron meteorite(s) *or* iron.
- 55** [1] Allow 1 credit if *both* elements are correct. Acceptable responses include, but are not limited to:
- iron/Fe
 - magnesium/Mg
 - silicon/Si
 - oxygen/O
- 56** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- 4,600 million y
 - 4.6 billion y
 - 4,600,000,000 y
- 57** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Weathering and erosion on Earth’s surface have erased many craters.
 - Most meteors are very small and burn up in Earth’s atmosphere.
 - Most of Earth’s surface is ocean, where sediments cover impact craters.
 - Crustal plate movement has destroyed the evidence.

- 58 [1] Allow 1 credit if *all nine* ages are correctly plotted within the rectangles shown below and are connected with a line from A to B that passes within the rectangles.

Note: It is recommended that an overlay with the same scale as the student answer booklet be used to ensure reliability in rating.



- 59 [1] Allow 1 credit for any value greater than 68 million years *and* less than 83 million years.

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

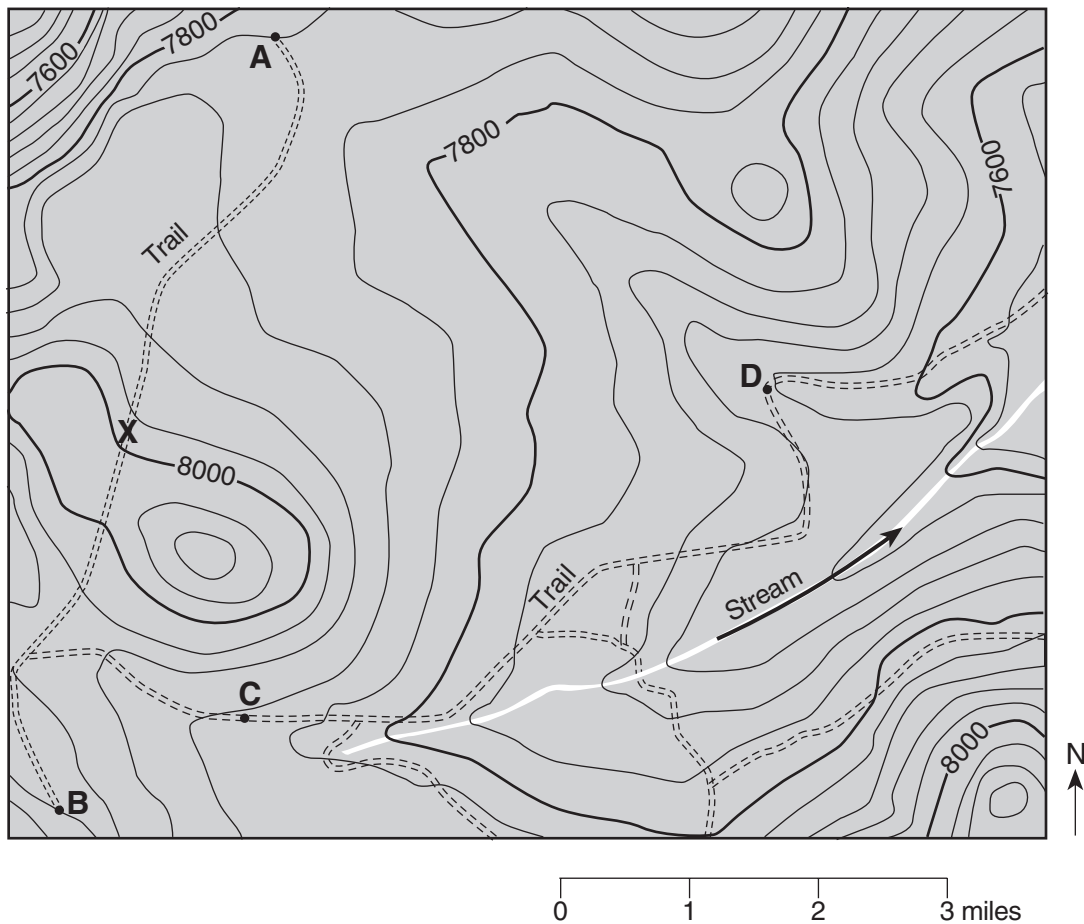
- Plates are diverging at the Mid-Atlantic Ridge where new seafloor is forming.
- The boundary between the South American Plate and the African Plate is a spreading center.
- New oceanic crust is formed at mid-ocean ridges.
- The seafloor is spreading.

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

- North American Plate and Eurasian Plate
- N. American Plate and African Plate

- 62 [1] Allow 1 credit if the center of the **X** is located on the trail on or between the 7960- and 8000-foot contour lines as shown below.
- 63 [1] Allow 1 credit for *both* an arrow on the map showing the stream flowing toward the northeast *and* for correct supporting evidence. Acceptable evidence includes, but is not limited to:
- The stream is flowing from higher contour elevations to lower contour elevations.
 - Contour lines bend upstream when crossing a stream.
 - Vs in the contour lines point in the opposite direction of stream flow.

Example of a correctly placed X for question 62 and a correctly drawn arrow for question 63:



- 64 [1] Allow 1 credit for 40 ft.
- 65 [1] Allow 1 credit for any value from 1.8 h to 2.2 h.

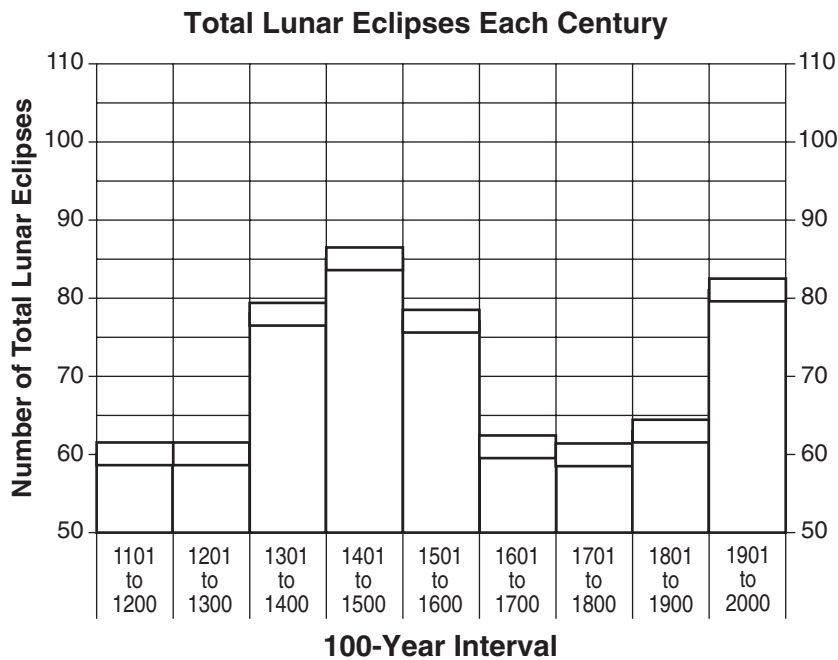
Part C

Allow a maximum of 20 credits for this part.

66 [1] Allow 1 credit if the tops of *all nine* bars are within the ranges shown below.

Note: It is recommended that an overlay with the same scale as the student answer booklet be used to ensure reliability in rating.

Example of a 1-credit response:

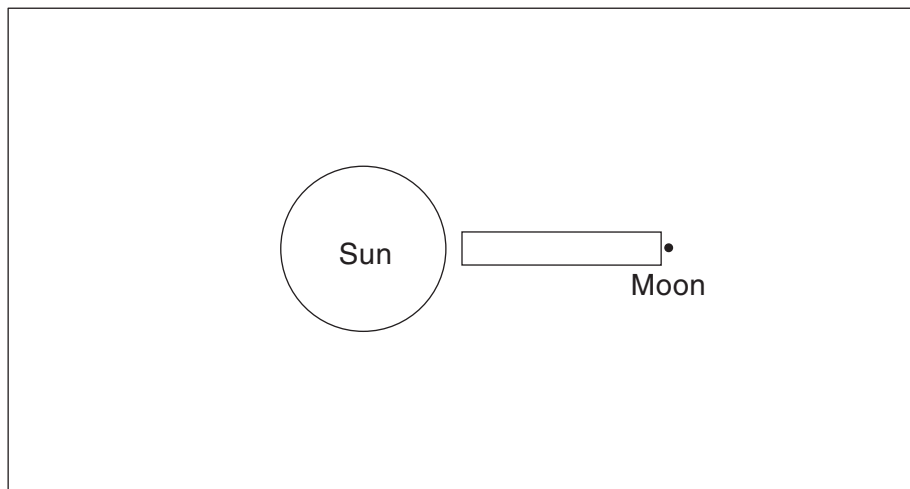


67 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- As the number of partial lunar eclipses increases, the number of total lunar eclipses decreases.
- The more partial lunar eclipses there are, the fewer total lunar eclipses there are.
- When the number of partial eclipses is high, the number of total eclipses is low.

68 [1] Allow 1 credit if the center of the **X** is within the rectangular zone shown below.

Note: It is recommended that an overlay of the same size as the student answer booklet be used to ensure reliability in rating.



(Not drawn to scale)

69 [1] Allow 1 credit for clay *or* for a size equal to or less than 0.0004 cm.

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

- cooling
- solidification
- crystallization
- melting
- intrusion/intruding

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

- Basalt cuts across all other rock units.
- Contact metamorphism is shown between the basalt and all rock layers.

72 [1] Allow 1 credit for Ordovician Period.

73 [1] Allow 1 credit for marble *or* hornfels.

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

- They are formed over a short period of time.
- They are geographically widespread.

- 75 [1] Allow 1 credit for a correctly drawn 60°F isotherm. If more than one isotherm is drawn, *all* isotherms must be correct to receive credit. The isotherm does *not* have to be labeled.

Example of a 1-credit response:



- 76 [1] Allow 1 credit for any value from 0.20 °F/mi to 0.30 °F/mi.

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

- Miami is located at a lower latitude.
- Atlantic City receives a lower angle of insolation/less intense insolation.
- The temperatures in Miami are warmed by the Florida Current.
- Miami has a longer duration of insolation.

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

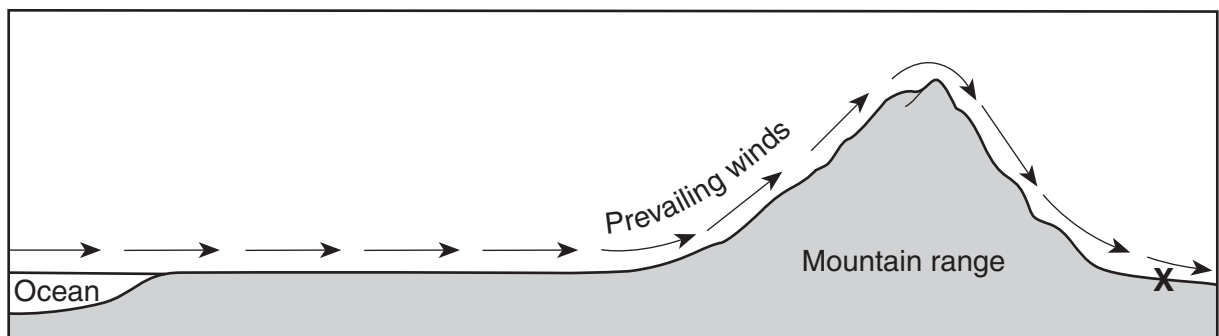
- expansion
- cooling to the dewpoint
- condensation
- cooling
- deposition

79 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Its warmest months are in January and February.
- Its coldest months are in June and July.
- The warm and cold times of the year are the opposite of New York's.

80 [1] Allow 1 credit if the climate is identified as dry and an **X** is placed anywhere on the leeward side of the mountain range.

Example of a correctly placed X:

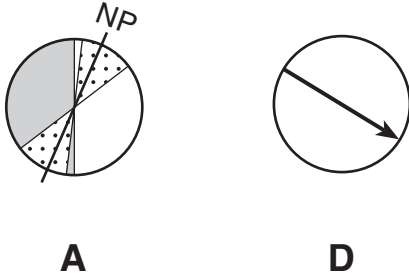


- 81 [1] Allow 1 credit if the axis line is drawn through Earth at location A within the stippled areas shown below and the North Pole is correctly labeled.

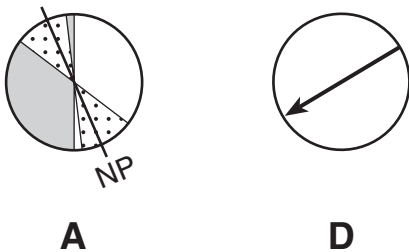
Note: It is recommended that an overlay of the same size as the student answer booklet be used to ensure reliability in rating.

- 82 [1] Allow 1 credit for an arrow at location D that shows a general west to east rotation. Allow credit if the arrow showing the direction of Earth's rotation is correctly drawn at location A.

Example of a 2-credit response for questions 81 and 82:



Note: Allow credit if the student labels the North Pole at the bottom, as shown below.



- 83 [1] Allow 1 credit for any value from 88 d to 94 d.

- 84 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Earth's distance to the Sun is increasing.
- Earth is getting farther from the Sun.
- Earth is approaching aphelion.

- 85 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- The nighttime side of Earth at location A faces a different region of space than at location C.
- Earth is on different sides of the Sun in its orbit at locations A and C.
- Earth revolves around the Sun, so locations A and C have different views of the night sky.

Regents Examination in Physical Setting/Earth Science

August 2012

Chart for Converting Total Test Raw Scores to Final Examination Scores (Scale Scores)

The Chart for Determining the Final Examination Score for the August 2012 Regents Examination in Physical Setting/Earth Science will be posted on the Department's web site at: <http://www.p12.nysed.gov/apda/> on Friday, August 17, 2012. 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.

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 <http://www.forms2.nysed.gov/emsc/osa/exameval/reexameval.cfm>.
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.

Map to Core Curriculum

August 2012 Physical Setting/Earth Science			
Question Numbers			
Key Ideas/Performance Indicators	Part A	Part B	Part C
Standard 1			
Math Key Idea 1	5, 14	36, 39, 44, 58, 64, 65	76
Math Key Idea 2	3	59, 62	66, 67, 75, 79, 83, 85
Math Key Idea 3			
Science Inquiry Key Idea 1	1, 2, 4, 8, 18, 21, 23, 30, 35	43, 46, 49, 50, 51, 52, 53, 57, 60, 63	71, 74, 77, 78, 80, 85
Science Inquiry Key Idea 2			
Science Inquiry Key Idea 3			
Engineering Design Key Idea 1			
Standard 2			
Key Idea 1		48	
Key Idea 2			
Key Idea 3			
Standard 6			
Key Idea 1	9, 12, 17, 20, 22, 25, 28, 32	38, 40, 43, 46, 47, 48, 50, 51, 57	68, 70, 78, 81, 82, 85
Key Idea 2	2, 7, 10, 11, 13, 15, 16, 17, 18, 19, 24, 25, 28, 29, 31, 34, 35	37, 38, 39, 40, 41, 42, 45, 54, 55, 56, 58, 59, 61	68, 69, 70, 71, 72, 73, 75, 77, 80, 81, 82, 85
Key Idea 3	27	62, 64, 65	76
Key Idea 4		53	
Key Idea 5	6, 19, 21, 23, 33	42, 44, 47, 48, 49, 52, 59, 60, 62, 63	75, 77, 79, 80, 81
Key Idea 6			
Standard 7			
Key Idea 1			
Key Idea 2		65	67
Standard 4			
Key Idea 1	1, 2, 3, 4, 5, 7, 8, 11, 13, 25, 26, 27, 28, 29, 30, 31	36, 37, 39, 40, 49, 50, 56	66, 67, 68, 71, 72, 74, 81, 82, 83, 84, 85
Key Idea 2	6, 9, 10, 12, 14, 15, 16, 17, 18, 19, 20, 32, 33, 34, 35	38, 41, 42, 43, 44, 45, 46, 47, 48, 51, 52, 53, 54, 57, 58, 59, 60, 61, 62, 63, 64, 65	75, 76, 77, 78, 79, 80
Key Idea 3	21, 22, 23, 24	55	69, 70, 73
Reference Tables			
ESRT 2011 Edition (Revised)	3, 7, 8, 11, 13, 14, 15, 16, 18, 20, 21, 22, 23, 24, 27, 31, 32	36, 37, 38, 41, 44, 45, 46, 48, 49, 52, 53, 54, 55, 56, 60, 61, 65	69, 70, 72, 73, 74, 76