

# FOR TEACHERS ONLY

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

## PS-ES PHYSICAL SETTING/EARTH SCIENCE

Wednesday, August 14, 2013 — 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/assessment/> 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 ..... 3 .....	10 ..... 1 .....	19 ..... 2 .....	28 ..... 2 .....
2 ..... 4 .....	11 ..... 2 .....	20 ..... 4 .....	29 ..... 2 .....
3 ..... 1 .....	12 ..... 4 .....	21 ..... 3 .....	30 ..... 4 .....
4 ..... 2 .....	13 ..... 4 .....	22 ..... 4 .....	31 ..... 4 .....
5 ..... 1 .....	14 ..... 3 .....	23 ..... 4 .....	32 ..... 1 .....
6 ..... 1 .....	15 ..... 1 .....	24 ..... 3 .....	33 ..... 1 .....
7 ..... 3 .....	16 ..... 1 .....	25 ..... 1 .....	34 ..... 2 .....
8 ..... 4 .....	17 ..... 2 .....	26 ..... 4 .....	35 ..... 3 .....
9 ..... 4 .....	18 ..... 1 .....	27 ..... 3 .....	

**Part B-1**

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

## 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. If the student's responses for the multiple-choice questions are being hand scored prior to being scanned, the scorer must be careful not to make any marks on the answer sheet except to record the scores in the designated score boxes. Marks elsewhere on the answer sheet will interfere with the accuracy of the scanning.**

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. Teachers may not score their own students' answer papers.

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. If the student gives more than one answer to a question, only the first answer should be rated. 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/assessment/> on Wednesday, August 14, 2013. 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.**

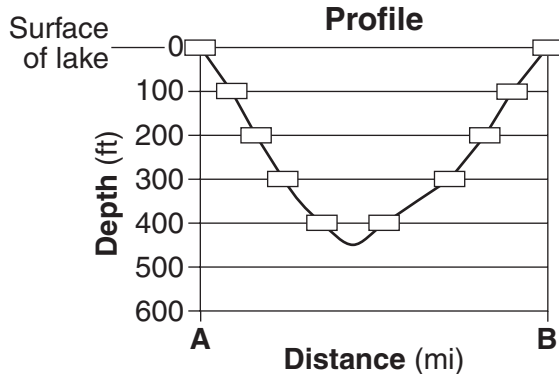
Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that, for each administration, the conversion chart provided for that administration be used to determine the student's final score.

**Part B–2**

**Allow a maximum of 15 credits for this part.**

- 51 [1] Allow 1 credit if the centers of *all ten* plots are located within the boxes shown and a correctly drawn line passes within each box. The low point of the line must extend below 400 feet but not below 500 feet.

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



- 52 [1] Allow 1 credit for any value from 18 to 23 with the correct units. Acceptable units include, but are not limited to:

- ft/mi
- feet/mile
- feet per mile
- ft/mile

- 53 [1] Allow 1 credit for any depth greater than 600 ft and less than 700 ft.

- 54 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- The isolines are close together.
- The spaces between the lines are small.
- There is a greater change in depth over a shorter distance.
- The deepest waters are closer to the southern shore than they are to the northern shore.

- 55 [1] Allow 1 credit if *both* the circle fossil symbol  $\bigcirc$  *and* the evidence are correct. Acceptable evidence includes, but is not limited to:

- The fossil was found only in the Devonian layer/one layer in each outcrop.
- The fossil was geographically widespread.
- The fossil indicates a short existence in geologic time/limited time interval.

- 56** [1] Allow 1 credit if *both* outcrop 2 is stated *and* the evidence is correct. Acceptable evidence includes, but is not limited to:
- The rock layers of the same age as those shown in outcrop 2 are all found in New York State.
  - Permian Period rock is not present in New York State, but is shown in outcrops 1 and 3.
- 57** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- Carbon-14 has a short half-life.
  - These rock layers are too old to contain measurable carbon-14.
  - Carbon-14 is used to date recent remains.
  - No organic material remains in the rock.
- 58** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The bedrock in the outcrops formed during the Paleozoic Era, and *Coelophysis* lived during the Mesozoic Era.
  - The youngest rock layer is from the Permian, and *Coelophysis* did not exist yet.
  - *Coelophysis* lived at a much later time.
  - No Triassic bedrock is shown.
  - Layers containing *Coelophysis* have been removed by erosion.
- 59** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- scratches/striations on the bedrock surface
  - grooves in bedrock
  - a boulder transported from a more northerly outcrop on the bedrock
  - an erratic
  - drumlin
- 60** [1] Allow 1 credit if *both* responses are correct. Acceptable responses include, but are not limited to:
- Moraines:
- unsorted sediments/mixed particles
  - unlayered
- Outwash plain:
- sorted deposits
  - layered sediments

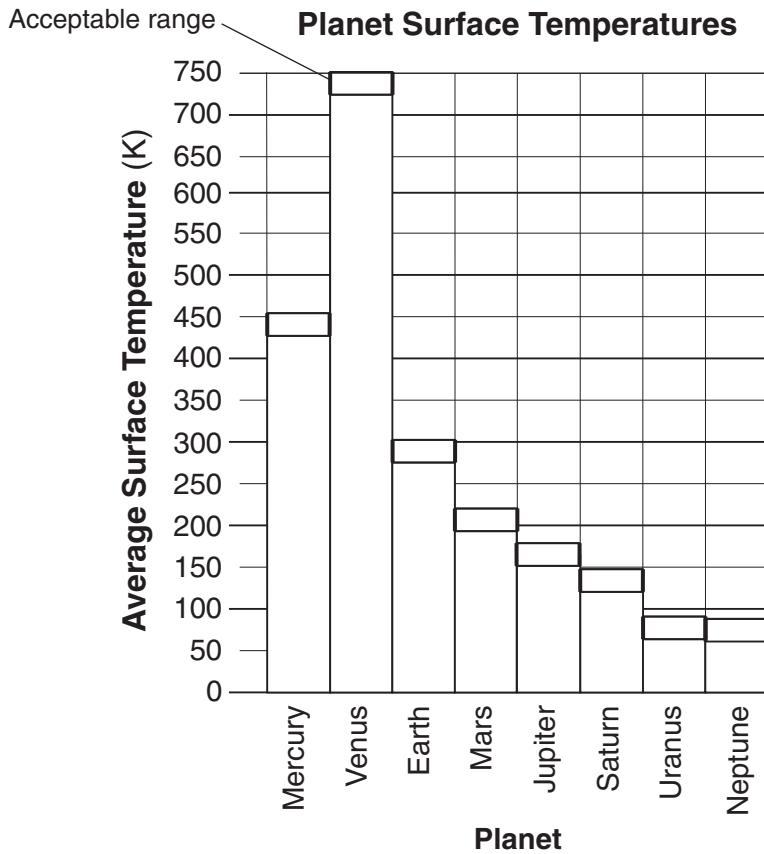
- 61** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The valley would have a U-shaped appearance.
  - flat bottom and steep sides
  - rounded shape
- 62** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The ice is white/light colored.
  - The smooth ice reflects better than rougher land terrain.
  - The bedrock/soil is darker colored.
  - Snow and ice reflect more insolation.
  - has a higher albedo
- 63** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- precipitation
  - raining
  - snowing
  - sleet
  - hailing
- 64** [1] Allow 1 credit for 4520 J.
- 65** [1] Allow 1 credit if *both* responses are correct. Acceptable responses include, but are not limited to:
- Runoff:
- increases
  - goes up
- Infiltration:
- decreases
  - less
  - would drop to zero/near zero

**Part C**

**Allow a maximum of 20 credits for this part.**

**66** [1] Allow 1 credit if the tops of *all eight* bars end within the acceptable range rectangles indicated below.

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

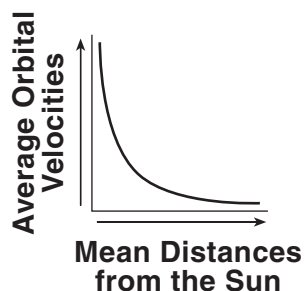
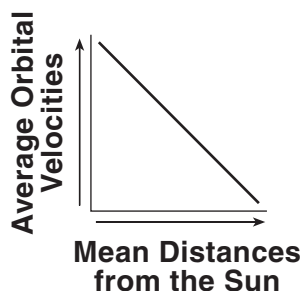


**67** [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Carbon dioxide traps heat in the atmosphere.
- Carbon dioxide absorbs infrared and reradiates it back to Venus.
- Carbon dioxide is a greenhouse gas.

68 [1] Allow 1 credit for a line with a negative slope.

**Examples of 1-credit responses:**



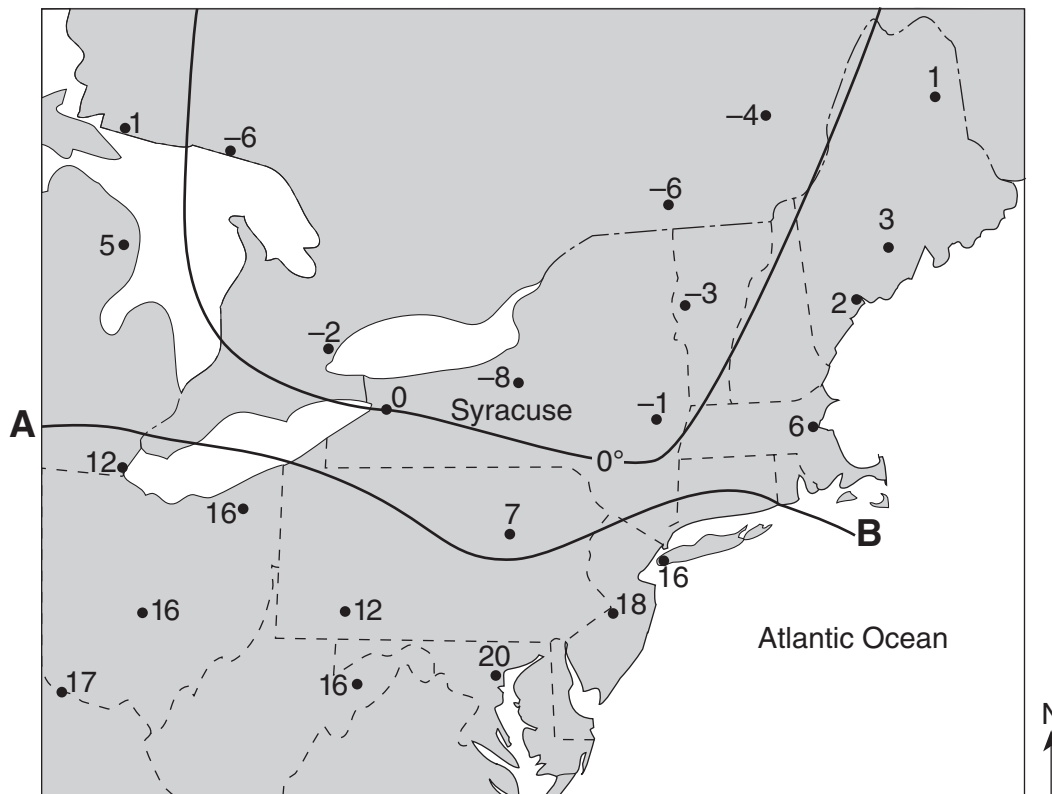
69 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Earth's distance to the Sun changes in a cyclic pattern.
- Gravity is greater when Earth is closer to the Sun.
- Earth moves slower when it is farther from the Sun.
- Earth has an elliptical/slightly eccentric orbit.

70 [1] Allow 1 credit if the  $0^{\circ}$  isotherm is correctly drawn with each end drawn to the edge of the map. If additional isotherms are drawn, *all* isotherms must be correct to receive credit.

**Note:** The isotherm need not be continued over the lakes.

**Example of a 1-credit response:**



71 [1] Allow 1 credit for any value from  $-20^{\circ}\text{C}$  to  $-24^{\circ}\text{C}$ .

72 [1] Allow 1 credit for cP *or* cA *or* mP. Allow credit for either uppercase or lowercase letters.

**Note:** Do *not* allow credit if air-mass letters are reversed, such as Ac or Pc.

For students who used the Spanish edition, either exclusively or in conjunction with the English edition of the exam, allow credit for the correct two-letter air-mass symbol as it appears in either the English or Spanish *2011 Edition Reference Tables for Physical Setting/Earth Science*.

73 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- The ocean changes temperature more slowly than the nearby land does.
- Large bodies of water moderate climatic temperatures.
- A warm ocean current is flowing nearby.
- The water has a higher specific heat than the land does.

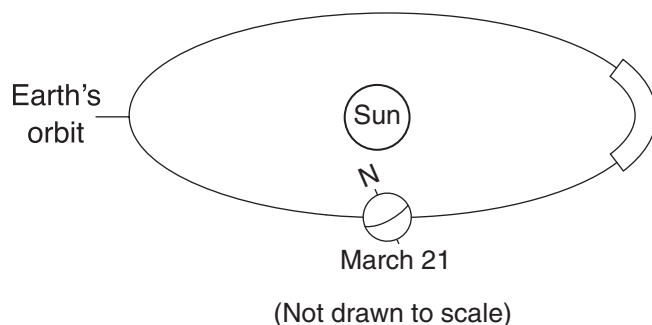
74 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- *Polaris* is not overhead.
- All compass directions are shown.
- The Sun's path is tilted.
- At the North Pole, the altitude of *Polaris* is  $90^{\circ}$ .

75 [1] Allow 1 credit if the center of the **X** is located within the clear outlined area shown below.

**Note:** Allow credit if a symbol other than an **X** is used.

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





- 76** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- the rotation of Earth
  - Earth is spinning on its axis.
- 77** [1] Allow 1 credit for an acceptable response for *both* rocks. Acceptable responses include, but are not limited to:
- Scoria:
- noncrystalline
  - glassy
  - vesicular
- Basalt:
- fine
  - nonvesicular
- 78** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- an uncertain or complex plate boundary
  - a divergent plate boundary
  - rift valley/East African Rift
- 79** [1] Allow 1 credit for *two* acceptable responses. Acceptable responses include, but are not limited to:
- Hawaii
  - Yellowstone
  - Canary Islands
  - Tasman Hot Spot
  - St. Helena Hot Spot
  - Galapagos Hot Spot
- Note:** Do *not* allow credit for Bouvet Hot Spot, Iceland Hot Spot, or Easter Island Hot Spot.
- 80** [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The shale and sandstone were metamorphosed by the heat of the lava.
  - The lava flow heated the rocks that it flowed over.
  - Contact metamorphism changed the top layer of formation A.
  - Heat and pressure formed hornfels and quartzite.
  - metamorphism/recrystallization

**81** [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Faulting displaced the sandstone layer.
- Two Peaks sandstone was broken by faults in two locations.
- faulting

**82** [1] Allow 1 credit for *three* acceptable responses. Acceptable responses include, but are not limited to:

- potassium feldspar *or* orthoclase
- quartz
- plagioclase feldspar
- biotite *or* mica
- muscovite
- amphibole *or* hornblende

**Note:** If a student answers “feldspar” as one of the three responses, credit is *not* allowed for other responses of specific feldspar minerals. If a student answers “mica” as one of the three responses, credit is *not* allowed for other responses of specific mica minerals.

**83** [1] Allow 1 credit if *all four* weather variables are correct.

Air temperature: 31°F

Dewpoint: 29°F

Wind speed: 10 knots

Cloud cover: 100%

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

- The dewpoint and air temperature are nearly the same.
- Snow is falling in Oswego.
- There is 100% cloud cover.
- Air pressure is low.

**85** [1] Allow 1 credit for 999.5 mb.

## Regents Examination in Physical Setting/Earth Science

August 2013

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

**The Chart for Determining the Final Examination Score for the August 2013 Regents Examination in Physical Setting/Earth Science will be posted on the Department's web site at: <http://www.p12.nysed.gov/assessment/> on Wednesday, August 14, 2013. 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

<b>August 2013 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	32	49, 52, 54	66
Math Key Idea 2	27		68, 69
Math Key Idea 3	19		
Science Inquiry Key Idea 1	7, 33	36, 44, 45, 48, 57	67, 74, 76, 81
Science Inquiry Key Idea 2	8, 13		
Science Inquiry Key Idea 3	1, 2, 5, 8, 9, 10, 12, 15, 16, 17, 18, 19, 20, 23, 26, 28, 32, 33, 34, 35	37, 42, 43, 46, 55, 56, 57, 58, 64	71, 77, 78, 79, 82, 83, 85
Engineering Design Key Idea 1			
<b>Standard 2</b>			
Key Idea 1			
Key Idea 2			
Key Idea 3			
<b>Standard 6</b>			
Key Idea 1	1, 11, 22, 24, 25	38, 50, 59, 60, 61, 63	67, 72, 75, 79, 80
Key Idea 2	5, 20, 30, 31	39, 42, 48, 49, 51, 55, 62	73, 75, 80, 83, 84, 85
Key Idea 3		53, 54	70, 71, 72
Key Idea 4	28		
Key Idea 5	29, 30	37, 39, 40, 41, 47, 60, 61, 65	73, 84
Key Idea 6			
<b>Standard 7</b>			
Key Idea 1		65	
Key Idea 2			
<b>Standard 4</b>			
Key Idea 1	1, 2, 3, 4, 5, 6, 7, 8, 27, 28, 29, 30, 32	36, 39, 40, 41, 44, 45, 46, 47, 49, 50, 55, 56, 57, 58, 63, 64, 65	66, 68, 69, 74, 75, 76, 81
Key Idea 2	9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 31	37, 38, 42, 43, 48, 51, 52, 53, 54, 59, 60, 61, 62	67, 70, 71, 72, 73, 78, 79, 83, 84, 85
Key Idea 3	26, 33, 34, 35		77, 80, 82
<b>Reference Tables</b>			
ESRT 2011 Edition (Revised)	1, 2, 5, 8, 9, 10, 12, 15, 16, 17, 18, 19, 20, 23, 26, 28, 32, 33, 34, 35	37, 42, 43, 46, 55, 56, 57, 58, 64	71, 77, 78, 79, 82, 83, 85