

FOR TEACHERS ONLY

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

PS-ES PHYSICAL SETTING/EARTH SCIENCE

Wednesday, January 29, 2014 — 1:15 to 4:15 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 4	10 2	19 3	28 3
2 3	11 3	20 4	29 2
3 4	12 3	21 2	30 1
4 3	13 1	22 1	31 2
5 1	14 1	23 1	32 3
6 1	15 3	24 4	33 3
7 4	16 1	25 1	34 2
8 4	17 4	26 2	35 3
9 3	18 2	27 4	

Part B-1

36 3	40 4	44 4	48 3
37 2	41 3	45 2	49 2
38 4	42 1	46 1	50 3
39 3	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, January 29, 2014. 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:

Latitude:

— 27° N

— 27 degrees North

Longitude:

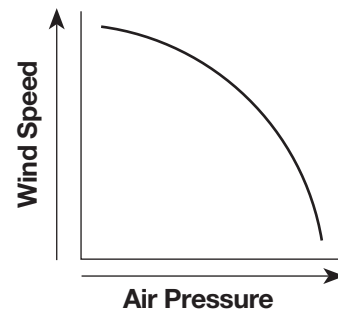
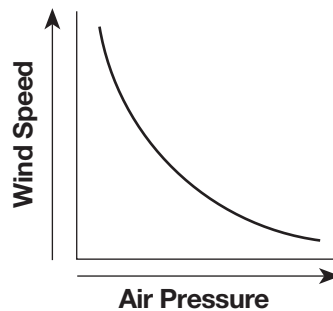
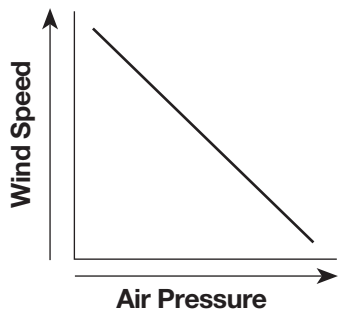
— 80° W

— eighty° west

52 [1] Allow 1 credit for NE *or* northeast *or* northeastward *or* for indicating slightly east of northeast.

53 [1] Allow 1 credit for a line showing that, generally, as air pressure increases, wind speed decreases.

Examples of 1-credit responses:



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

— ^{14}N

— nitrogen-14/N-14

— nitrogen/N

55 [1] Allow 1 credit for 28,500 y.

56 [1] Allow 1 credit if *two* arrows are correctly drawn approximately parallel to the fault, showing the relative motion, as shown.

Note: Allow credit even if the arrows extend through rock *F*.

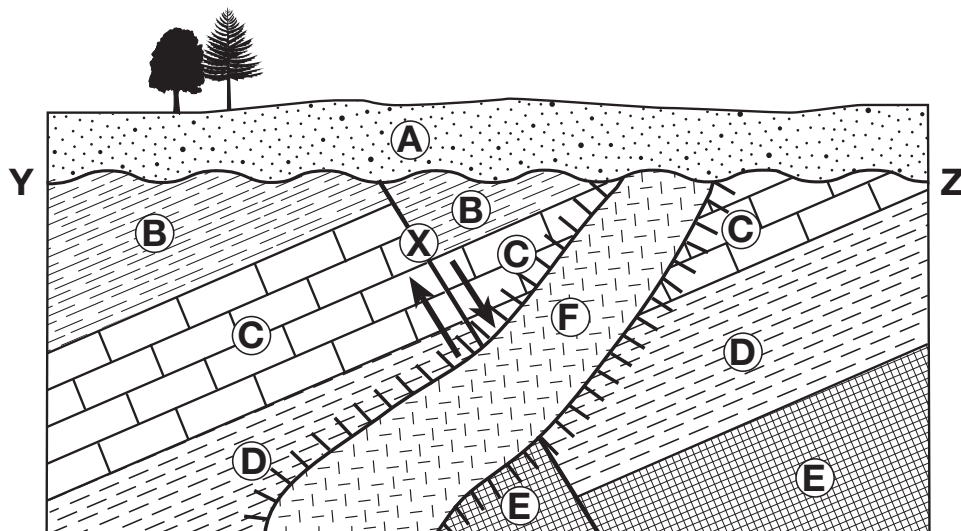
Do *not* allow credit for any arrow in layer *A*, only.



57 [1] Allow 1 credit if the symbols drawn are generally similar to those on the *Earth Science Reference Tables* for shale in most of layer B and for rock salt in most of layer E. The symbols must be drawn on *both* sides of the fault, as shown.

Note: Allow credit even if the symbols for shale and rock salt are not parallel to the other rock layers shown.

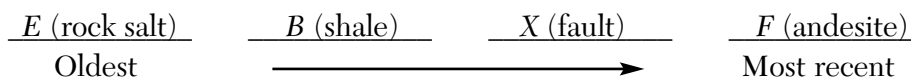
58 [1] Allow 1 credit for the contact metamorphism symbol drawn on only the two sides of F, as shown below.

Example of a 3-credit response for questions 56, 57, and 58:



Key	
	Andesite
	Contact metamorphism

59 [1] Allow 1 credit for the sequence shown below.



Note: If more than these four letters are used, all letters used must be in the correct sequence, e.g., E, D, C, B, X, F, YZ, A.

60 [1] Allow 1 credit for *two* acceptable processes. Acceptable responses include, but are not limited to:

- uplift
- weathering
- erosion
- submergence/subsidence
- deposition

61 [1] Allow 1 credit for pebbles.

62 [1] Allow 1 credit if the relative changes in *both* the stream velocity and rate of erosion are correctly described. Acceptable responses include, but are not limited to:

Stream velocity:

- increases
- gets faster
- becomes greater

Rate of erosion:

- increases
- There is more erosion.

63 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

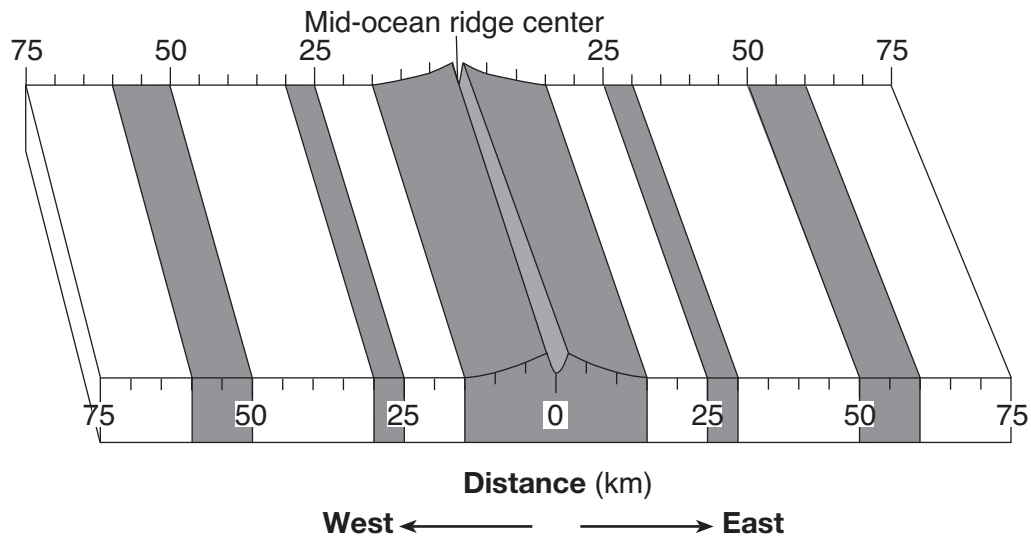
- abrasion/friction between the particles
- bouncing and rolling along the stream bottom
- Particle collision breaks off pieces.
- Particles are weathered.

Note: Do *not* allow “water erosion” alone because “transported by the stream” is part of the question.

Do *not* allow “rounding by water” alone because water alone does not produce rounding.

- 64 [1] Allow 1 credit if the width and placement of the shading have been correctly indicated on either the surface and/or the side view.

Example of a 1-credit response:



- 65 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- As distance from the ridge increases, the age of the bedrock increases.
 - the farther away from the ridge, the older the age of the bedrock
 - The youngest bedrock is near the ridge center.
 - direct relationship
 - Bedrock nearer the continents is older than bedrock nearer the ridge.

Part C

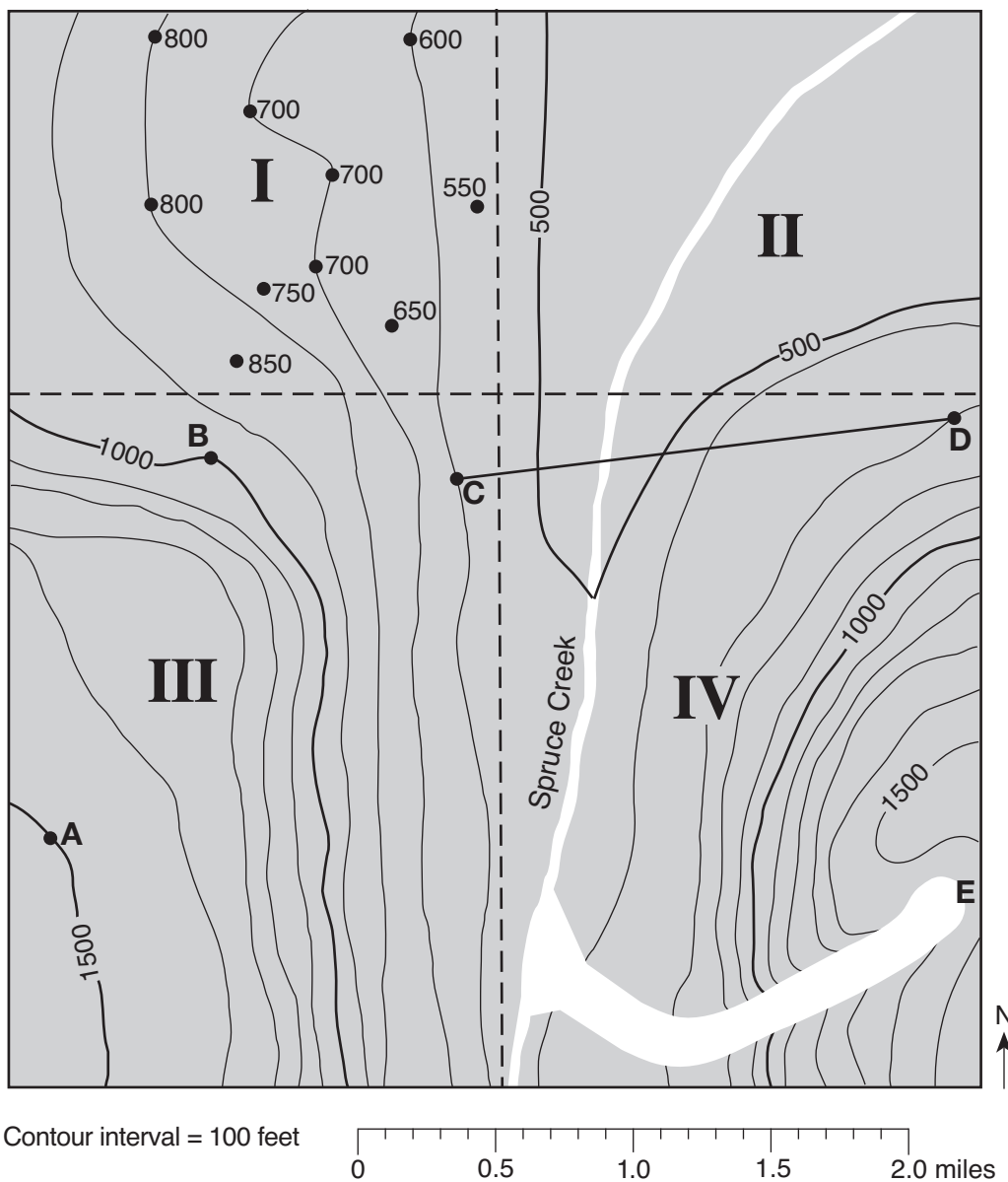
- 66 [1] Allow 1 credit if *all three* contour lines are drawn correctly. If additional contour lines are drawn, all must be correct to receive credit.

Note: All three contour lines must extend to the edge of the map to receive credit.

- 67 [1] Allow 1 credit for a line starting at location *E*, ending at Spruce Creek, and within the white region shown below.

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

Example of a 2-credit response for questions 66 and 67:



68 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

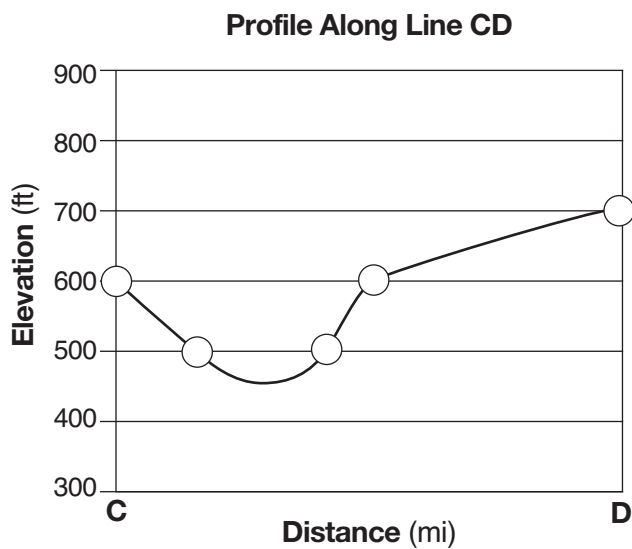
- has a gentler gradient
- It is flatter.
- Section II is lower in elevation.
- Section IV is steeper.

69 [1] Allow 1 credit for any value greater than 1400 ft but less than 1500 ft.

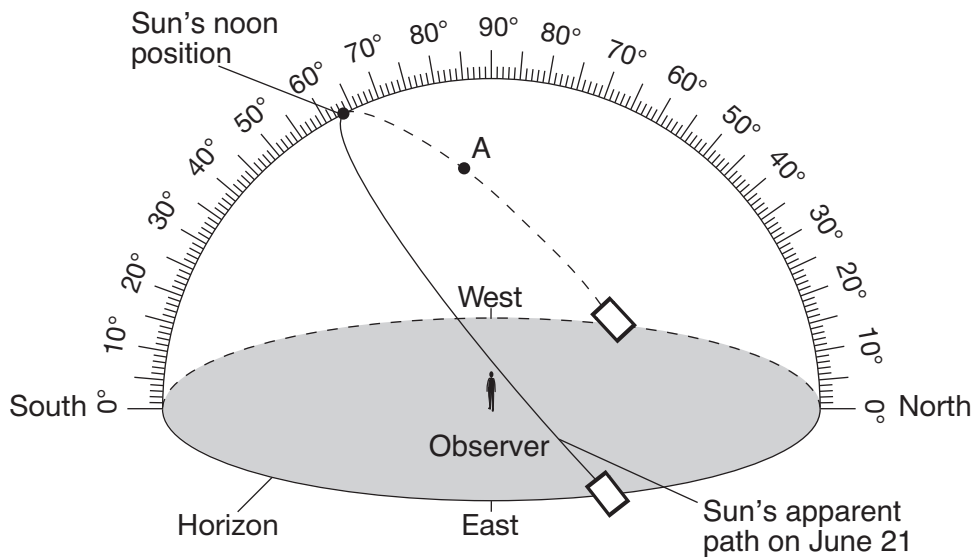
70 [1] Allow 1 credit for any value from 323 ft/mi to 345 ft/mi.

71 [1] Allow 1 credit if *all five* plots are within the circles shown below and are correctly connected with a line that passes within each circle. The line should extend below 500 ft but above 400 ft in the creek valley.

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



72 [1] Allow 1 credit if the center of an **X** is within either clear box shown below.



Note: It is recommended that an overlay of the same scale as the student answer booklet be used to ensure reliability in rating.
Allow credit if a symbol other than an **X** is used.
If more than one **X** is used, both must be correct to earn credit.

73 [1] Allow 1 credit for 3 p.m. *or* 3:00 p.m.

Note: Allow credit if the “p.m.” lacks periods.

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

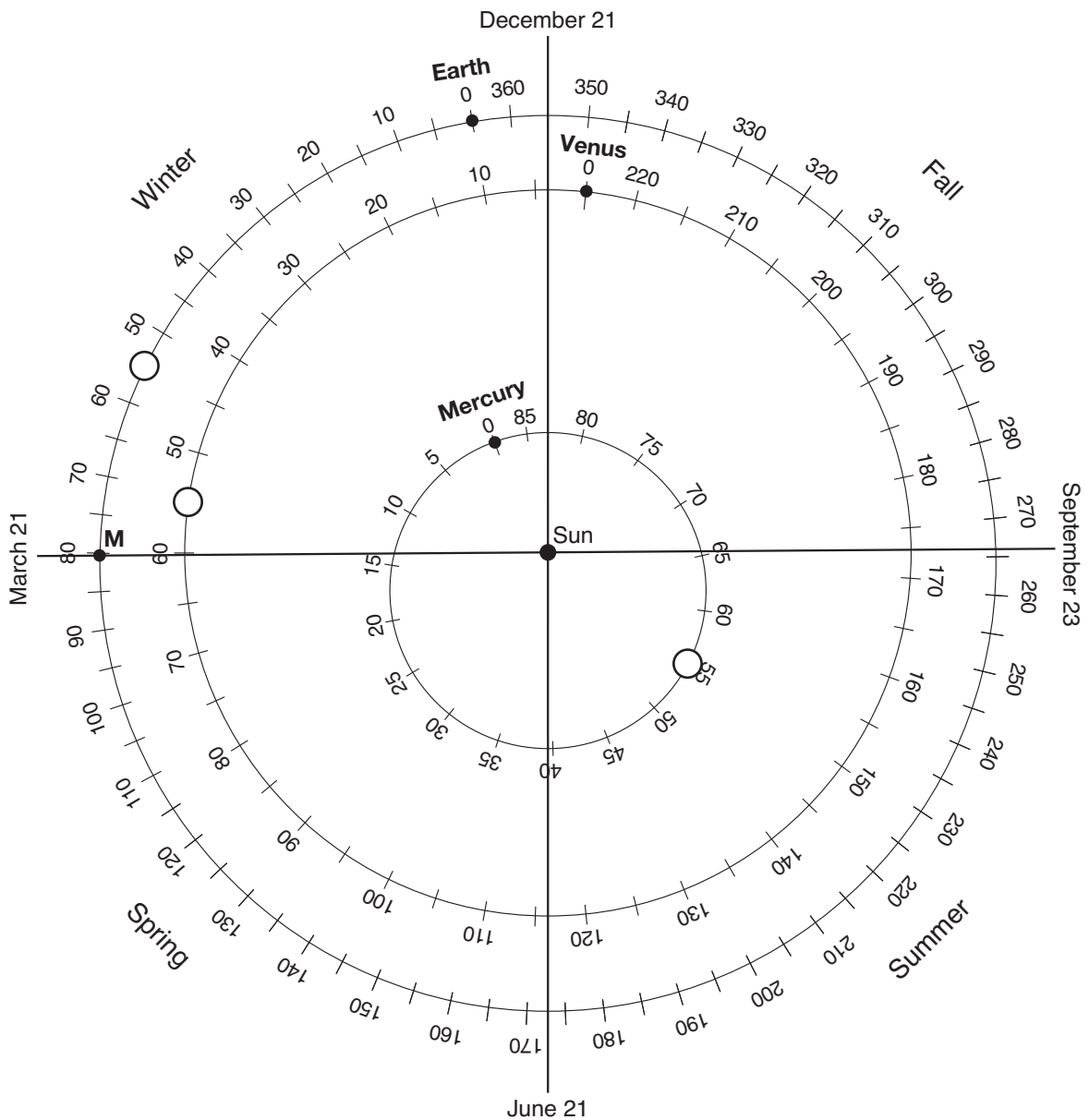
- the longer the Sun’s path, the longer the duration of daylight
- The shorter the Sun’s path, the shorter the daylight will be.
- direct relationship

75 [1] Allow 1 credit if the centers of *all three Xs* are within the circles shown below.

Note: Do not allow credit if more than one **X** is placed on any orbit.

Allow credit even 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.



(Not drawn to scale)

76 [1] Allow 1 credit for any value from 4 revolutions to 4.2 revolutions.

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

- 0°
- equator

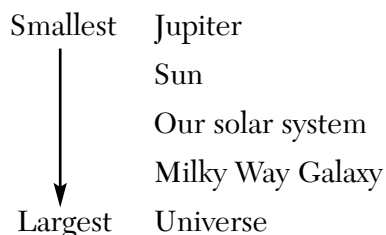
Note: Allow credit even if the student wrote “0° N” or “0° S.”

78 [1] Allow 1 credit for any value from 25,000 light-years to 35,000 light-years.

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

- a spiral galaxy
- a dense center of stars with spiral arms
- pinwheel-shaped

80 [1] Allow 1 credit if *all five* astronomical features are listed in the correct order as shown below.



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

Basalt: less than 1 mm *or* any value less than 1 mm

Gabbro: 1 mm to 10 mm *or* any value from 1 mm to 10 mm

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

- Dunite is more mafic.
- It is more mafic.
- Dunite does not contain pyroxene.
- Dunite contains only olivine, while peridotite contains pyroxene and olivine.
- Peridotite has calcium, aluminum, and sodium.

83 [1] Allow 1 credit for clay *or* clay with microscopic fossils *or* top layer.

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

- Clouds only reflect some of the Sun's energy back into space.
- Some radiation still gets through to Earth's surface.

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

- saves energy
- reduce utility costs
- produces clean energy
- A renewable source of energy has less effect on the environment.
- less pollution/CO₂ emissions/reduced carbon footprint/less global warming
- conservation of fossil fuels
- Solar energy is renewable.

Regents Examination in Physical Setting/Earth Science

January 2014

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

The Chart for Determining the Final Examination Score for the January 2014 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, January 29, 2014. 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

January 2014 Physical Setting/Earth Science			
Question Numbers			
Key Ideas/Performance Indicators	Part A	Part B	Part C
Standard 1			
Math Key Idea 1	8, 30	55	
Math Key Idea 2		46, 61	74
Math Key Idea 3			
Science Inquiry Key Idea 1	6, 21		84
Science Inquiry Key Idea 2			
Science Inquiry Key Idea 3	16, 19, 20, 24	36, 37, 38, 45, 47, 49, 50, 53, 54	82
Engineering Design Key Idea 1			
Standard 2			
Key Idea 1			
Key Idea 2	32		
Key Idea 3			
Standard 6			
Key Idea 1	5, 13	60, 63	72, 84
Key Idea 2	1, 7, 9, 16, 17, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35	36, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 54, 55, 56, 57, 58, 59, 60, 61, 64, 65	66, 67, 68, 69, 70, 71, 72, 73, 75, 76, 77, 78, 79, 81, 82, 83
Key Idea 3			80
Key Idea 4	27		
Key Idea 5		48, 55, 64	72, 73
Key Idea 6			71, 85
Standard 7			
Key Idea 1			
Key Idea 2			
Standard 4			
Key Idea 1	1, 2, 3, 13, 14, 15, 16, 21, 26, 27, 28, 29	39, 43, 44, 45, 46, 47, 48, 49, 51, 54, 55, 56, 58, 59, 60	73, 75, 76, 77, 78, 79, 80
Key Idea 2	5, 6, 7, 8, 9, 10, 11, 12, 17, 18, 19, 20, 22, 23, 25, 31, 32, 33, 34, 35	36, 37, 38, 50, 52, 53, 61, 62, 63, 64, 65	66, 67, 68, 69, 70, 71, 72, 74, 84, 85
Key Idea 3	24, 30	40, 41, 42, 57	81, 82, 83
Reference Tables			
ESRT 2011 Edition (Revised)	5, 6, 7, 8, 10, 11, 13, 15, 16, 17, 18, 19, 20, 24, 30, 33	36, 37, 40, 41, 54, 55, 57, 61	70, 76, 80, 81, 82