FOR TEACHERS ONLY

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

PHYSICAL SETTING/EARTH SCIENCE

Wednesday, August 17, 2022 — 8:30 to 11:30 a.m., only

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.nysed.gov/state-assessment/high-school-regents-examinations 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.

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*.

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 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. Do not attempt to correct the student's work by making insertions or changes of any kind. 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. Then the student's raw scores on the written 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.nysed.gov/state-assessment/high-school-regents-examinations on the day of the exam. 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.

To ensure the accuracy of overlays, select a printer setting such as *full*, *actual size*, or *100%* when printing this document. Do ***not*** select the *fit to page* setting.

51 [1] Allow 1 credit for Miocene Epoch.

52 [1] Allow 1 credit for Yellowstone Hot Spot.

53 [1] Allow 1 credit if *both* responses are correct.

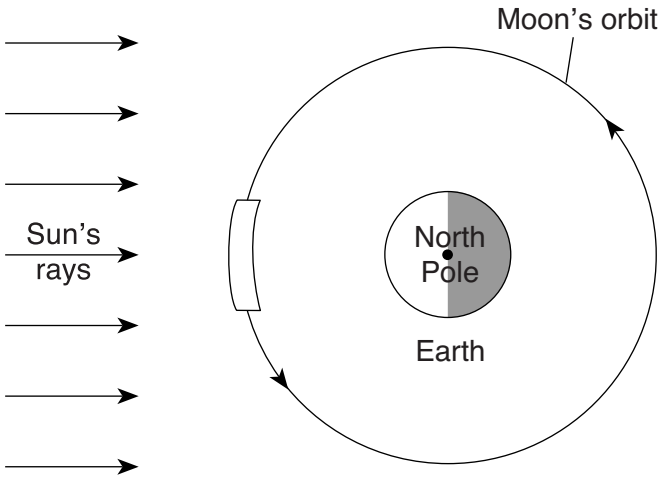
Interior temperature: any value from 4850°C to 5000°C

Depth: any value from 2850 to 2950 km

54 [1] Allow 1 credit if the center of the **X** is within or touches the clear banded region 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 sheet be used to ensure reliability in rating.



(Not drawn to scale)

55 [1] Allow 1 credit for 0.386 million km *or* 386,000 km.

Note: Correct units must be included in the student answer to receive credit.

56 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Elliptical/ellipse

— The Moon's orbit is slightly eccentric.

— almost a circle/nearly circular

— oval

Note: Do *not* allow credit for "circle" or "circular" alone because the orbit is *not* a circle.

57 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The Moon's revolution period equals the Moon's rotation period.

— Revolution and rotation are both 27.3 days.

— The Moon makes one spin in exactly the same time that it makes one orbit around Earth.

58 [1] Allow 1 credit for any time from 9 a.m. to 11 a.m.

Note: a.m. must be included in student answer.

59 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The shadow gets shorter until noon, then gets longer until sunset.

— decreases, then increases

— long, short, long

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

— rotation

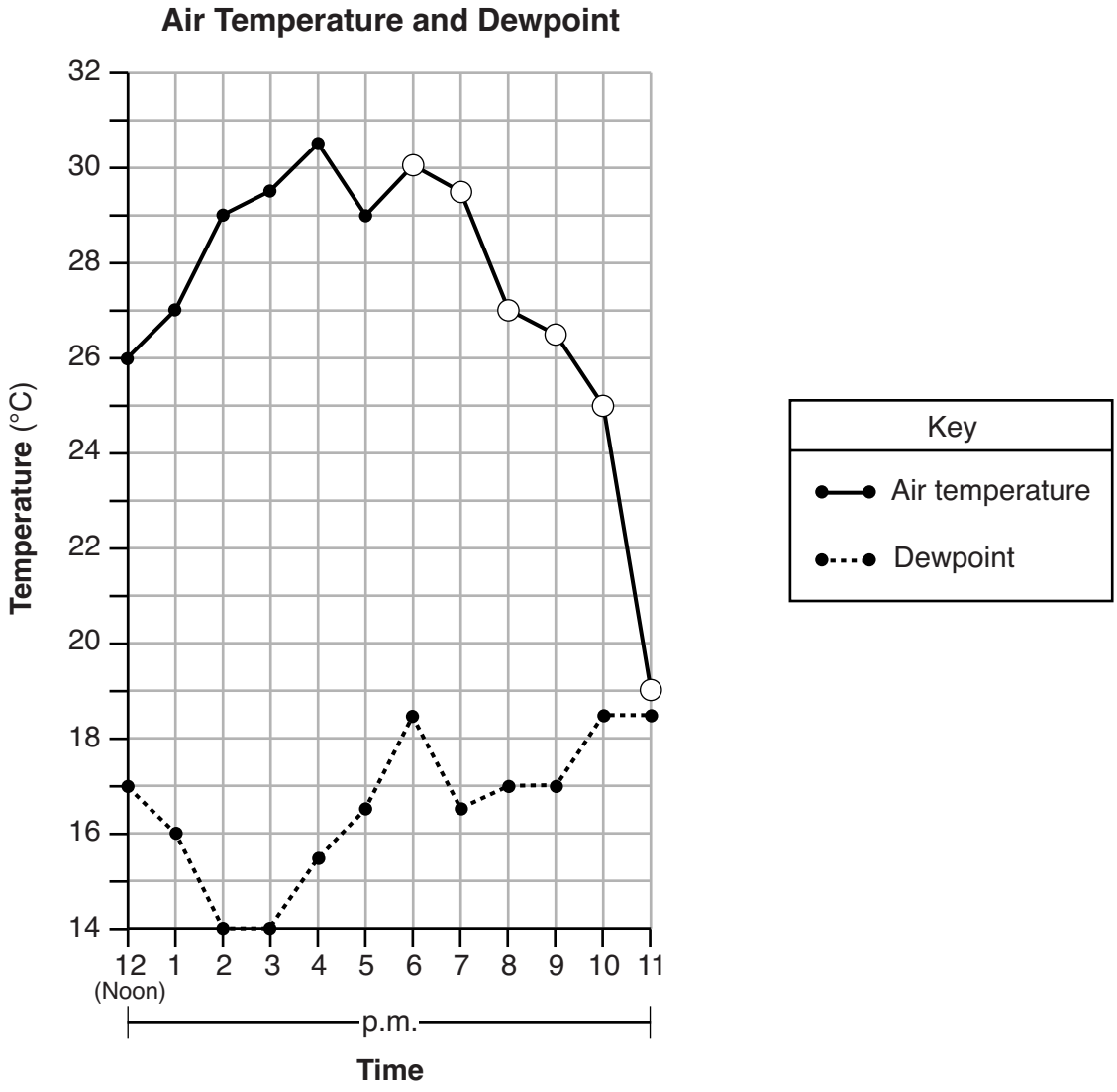
— turning on its axis

— spinning

61 [1] Allow 1 credit if the centers of *all six* student plots are within or touch the circles shown below, and *all six* plots are correctly connected with a line that passes within or touches each circle and is connected to the 5 p.m. plot.

Note: Allow credit if the line does *not* pass through the student plots but is still within or touching the circles.

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



62 [1] Allow 1 credit for 11 p.m. with an acceptable explanation. Acceptable explanations include, but are not limited to:

— The air temperature and dewpoint temperatures are the closest at that time.

— The air temperature cooled to near the dewpoint.

— The relative humidity is close to 100%

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

— psychrometer/sling psychrometer

— hygrometer

64 [1] Allow 1 credit for any value from 150 to 200 cm/s.

65 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— *W* is located on the outside bend of a meander curve.

— Due to inertia, the stream tends to flow in a straight line into the outside bank with a greater force.

Note: Do *not* allow credit for "*W* is on the curve" because *X* is also on the curve.

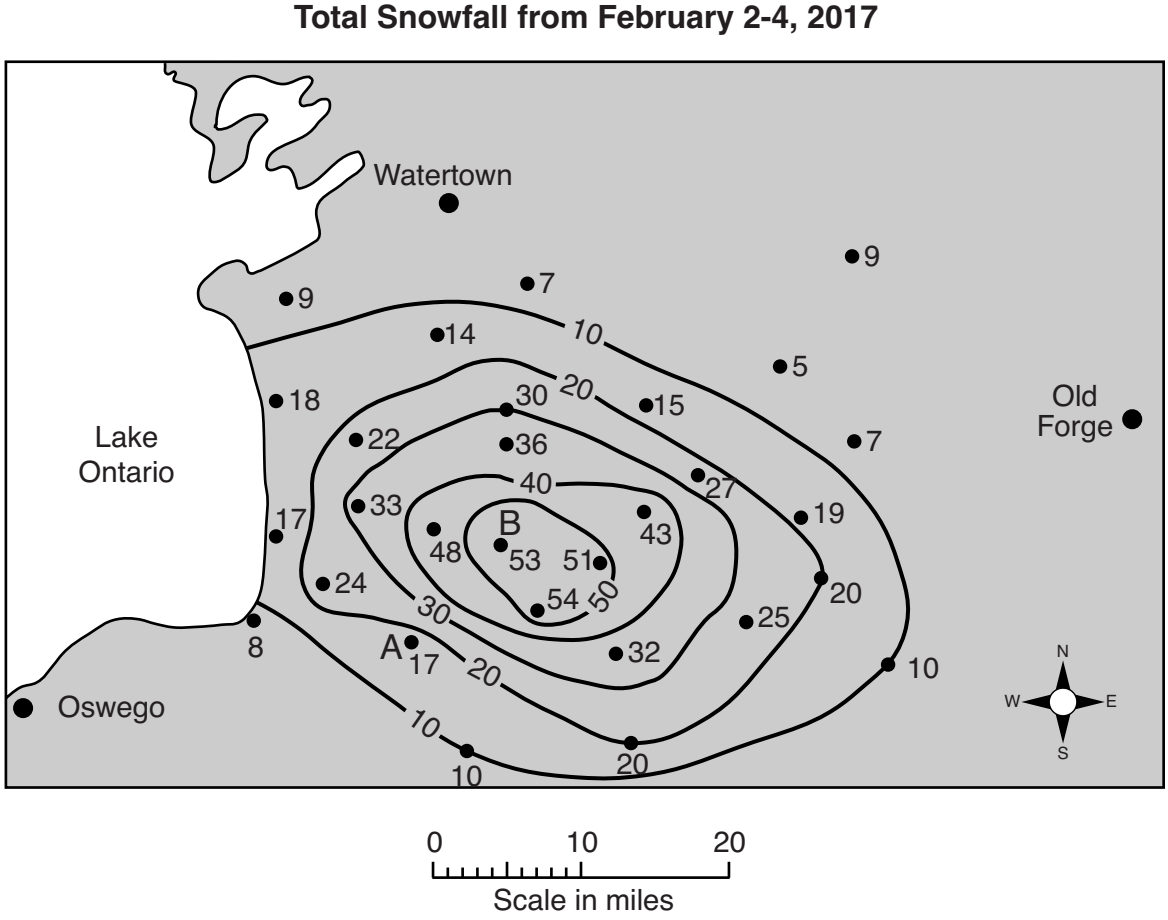
Do *not* allow credit for "Water is moving slower at *X*" because the student is simply stating the opposite of what is provided in the question.

Part C

Allow a maximum of 20 credits for this part.

66 [1] Allow 1 credit if the 20-, 30-, and 40-inch isolines are correctly drawn. If additional lines are drawn, all isolines must be correct to receive credit. All isolines should form closed loops. The 20-inch isoline must pass through or touch the two 20 dots. The 30-inch isoline must pass through or touch the 30 dot.

Examples of 1-credit responses:

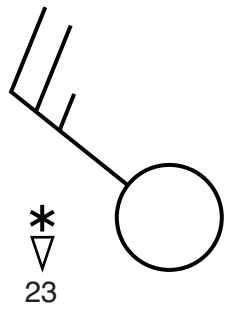


67 [1] Allow 1 credit for any value from 3.6 in/mi to 4.5 in/mi.

68 [1] Allow 1 credit for Tug Hill Plateau.

69 [1] Allow 1 credit if *all four* weather conditions are in the correct location and in the correct format.

Example of a 1-credit response:

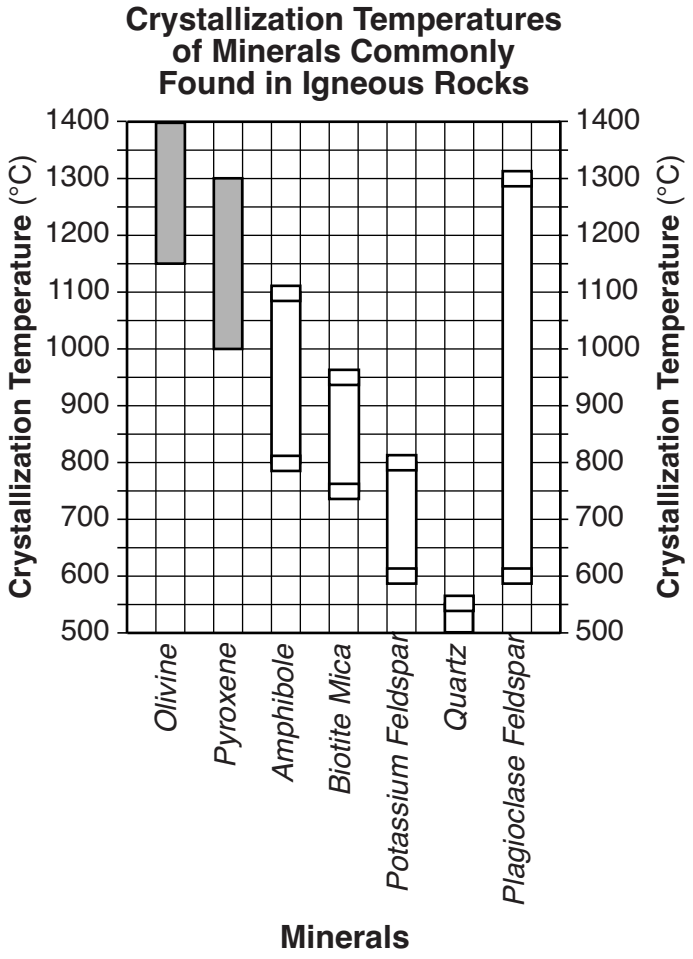


Note: The feathers representing wind speed may be drawn on either side on the line indicating wind direction.

70 [1] Allow 1 credit if *all five* student-drawn bars are drawn in the correct columns and the ends of the bars are within or touch the rectangular areas shown at the end of each bar.

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

Do *not* allow credit if any bar is not directly in the column above the mineral name.



71 [1] Allow 1 credit for quartz.

72 [1] Allow 1 credit for silicon/Si and oxygen/O.

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

Color:

— green

— dark/darker

— black

— brown

— gray

Density:

— high/higher

— very dense

— greater

Note: Do *not* allow credit for any numbers for density.

74 [1] Allow 1 credit for West Australia Current.

75 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— December 21 *or* 20 *or* 22

— 12/21 *or* 12/20 *or* 12/22

76 [1] Allow 1 credit for cT. Allow credit for either upper-case or lower-case letters.

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

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*.

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

— Location *D* is behind the mountain range and shielded from the prevailing winds.

— Air currents at location *D* are coming down the mountain, warming and causing a drier climate.

— Winds at location *E* are rising up the mountain and cooling, causing precipitation.

— There is a mountain range between *D* and *E*.

— Location *D* is on the leeward side of a mountain.

— Location *E* is on the windward side of a mountain.

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

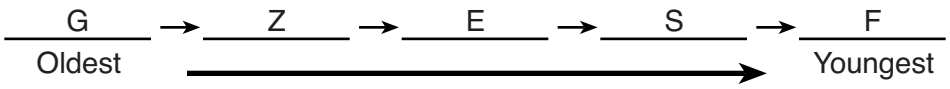
— *B* and *C* do not show their original horizontality.

— Rock layers *B* and *C* have been tilted/slanted.

— The left sides of both layers are higher than the right sides.

— An unconformity is located above rock units *B* and *C*.

79 [1] Allow 1 credit for the correct order shown below:



80 [1] Allow 1 credit for any value from 387 mya to 435 mya.

81 [1] Allow 1 credit if *both* responses are correct.

Process:

— condensation *or* deposition

Energy is:

— released

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

Rate of runoff:

— increases

— is greater

— faster

Rate of infiltration:

— decreases

— is less

— slower

83 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The rocket appears to curve/bend to the right.

— It's deflected to a different longitude to the east/Northeast/NE.

— clockwise

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

— As latitude increases, the deflection is greater.

— As latitude increases, the Coriolis effect increases.

— From the equator to the North Pole, the Coriolis effect increases.

— Winds curve more at higher latitudes.

— As latitude decreases, the deflection of winds is less.

— direct relationship

Note: Do *not* allow credit for "as latitude increases, there will be more/stronger winds" *or* "as latitude increases, there is a greater wind speed" because these responses do *not* directly relate latitude to the deflection of winds.

85 [1] Allow 1 credit for Foucault pendulum *or* pendulum *or* gyroscope.

Regents Examination in Physical Setting/Earth Science

August 2022

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

The *Chart for Determining the Final Examination Score for the August 2022 Regents Examination in Physical Setting/Earth Science* will be posted on the Department's web site at: http://www.nysed.gov/state-assessment/ on the day of the exam. 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 https://www.surveymonkey.com/r/8LNLLDW.
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 2022 Physical Setting/Earth Science			
Question Numbers			
Key Ideas/Performance Indicators	Part A	Part B	Part C
Standard 1			
Math Key Idea 1		61	67, 70
Math Key Idea 2	2, 7, 32	40, 44, 49, 52, 58, 62, 64	71, 82, 84
Math Key Idea 3		36	
Science Inquiry Key Idea 1	5, 14	38, 46, 50, 57, 59, 60, 65	77, 78, 80, 85
Science Inquiry Key Idea 2			79
Science Inquiry Key Idea 3	1, 2, 6, 8, 10, 15, 19, 20, 21, 22, 24, 26, 28, 34, 35	37, 39, 40, 51, 52, 53, 55, 56, 57, 64	60, 67, 68, 69, 72, 73, 74, 76, 80
Engineering Design Key Idea 1			
Standard 2			
Key Idea 1	63		
Key Idea 2			
Key Idea 3			
Standard 6			
Key Idea 1	23	38, 45, 65	77, 82
Key Idea 2	3, 4, 9, 10, 11, 12, 13, 15, 22, 23, 24, 25, 30, 32, 33, 35	36, 37, 42, 43, 44, 45, 47, 48, 49, 51, 52, 54, 56, 58, 63, 65	66, 68, 69, 70, 71, 72, 73, 74, 75, 76, 78, 79, 80, 81, 82, 83, 84
Key Idea 3			
Key Idea 4			
Key Idea 5	9, 11, 13, 16, 27, 33	47, 48, 49, 59, 62	78, 79, 82, 83, 84
Key Idea 6			
Standard 7			
Key Idea 1			
Key Idea 2		39, 41	
Standard 4			
Key Idea 1	1, 2, 3, 4, 5, 6, 7, 8, 13, 14, 19, 20	36, 37, 38, 44, 45, 46, 49, 50, 51, 54, 55, 56, 57, 58, 59, 60	75, 78, 79, 80, 81, 82, 83, 84, 85
Key Idea 2	9, 10, 11, 12, 15, 16, 17, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, 32, 33	39, 40, 41, 42, 43, 47, 48, 52, 53, 61, 62, 63, 64, 65	66, 67, 68, 69, 74, 76, 77
Key Idea 3	28, 34, 35		70, 71, 72, 73
Reference Tables			
ESRT 2011 Edition (Revised)	1, 2, 6, 8, 10, 15, 18, 19, 20, 21, 22, 24, 26, 28, 31, 34, 35,	37, 40, 51, 52, 53, 55, 57, 64	67, 68, 69, 72, 73, 74, 76, 80