FOR TEACHERS ONLY

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

PS–ES PHYSICAL SETTING/EARTH SCIENCE

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

Part B–1

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

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 Thursday, January 24, 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.

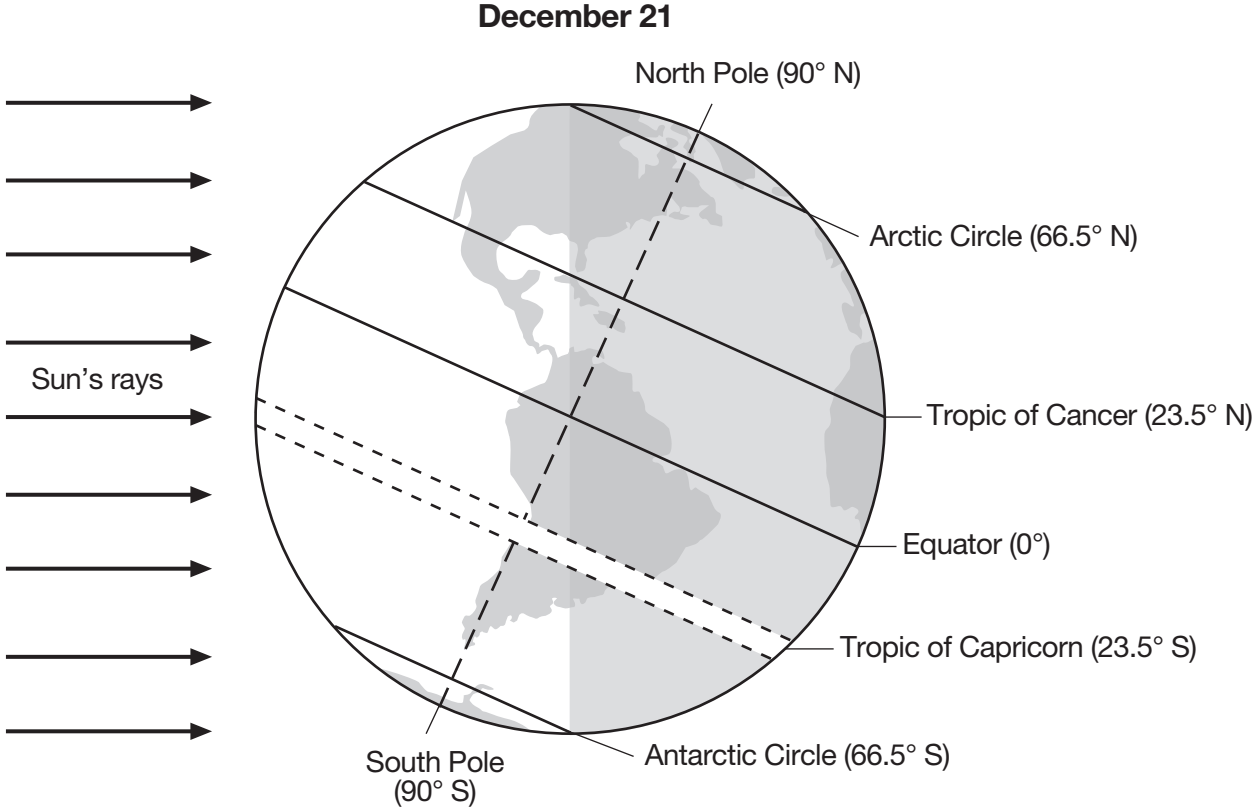
Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that, for each administration, the conversion chart provided for that administration be used to determine the student's final score.

Part B–2

Allow a maximum of 15 credits for this part.

51 [1] Allow 1 credit if the center of the **X** is located within the area between the dashed lines on either side of the Tropic of Capricorn (23.5° S).

Note: 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)

52 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— parallelism of Earth's axis

— The North Pole always points toward *Polaris*.

— revolution of Earth

— location of the Sun's vertical ray

— duration/intensity of insolation

— angle of insolation

53 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— 66.5° N *or* $66\frac{1}{2}$° N *or* 66° 30' N

— at the Arctic Circle

Note: Units and a compass direction must be included if a numerical latitude is given.

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

— The plagioclase feldspar in the basaltic rock is more calcium rich.

— The plagioclase feldspar in the granitic rock contains more sodium.

— less sodium in basaltic plagioclase feldspar

— The basaltic rock is more calcium rich.

55 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The minerals crystallize at different temperatures.

— Olivine is the first to crystallize and quartz is the last.

— Quartz crystallizes at a lower temperature than olivine.

— Olivine forms at a higher temperature.

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

Similarity:

— Both form at lower temperatures.

— The rocks have similar mineral compositions.

— The minerals have similar densities.

— similar color

Difference:

— Andesite is extrusive and diorite is intrusive.

— Andesite has a finer texture.

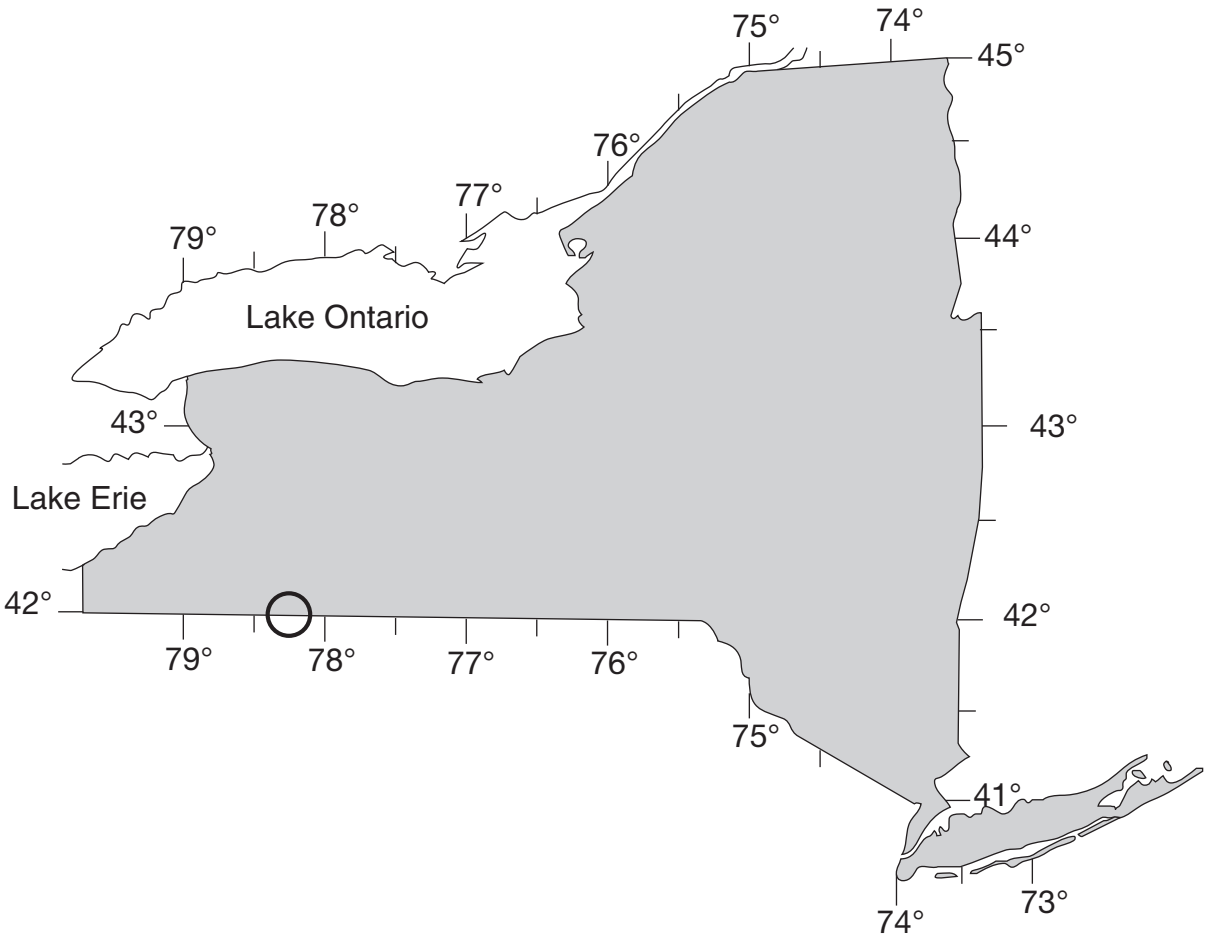
— crystal size/grain size

— cooling rates

— environment of formation

57 [1] Allow 1 credit if the center of an **X** is placed within the circled area shown on the map below.

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



58 [1] Allow 1 credit for the rock unit Canadaway.

59 [1] Allow 1 credit for brachiopods *or Mucrospirifer*.

60 [1] Allow 1 credit for Avalon.

61 [1] Allow 1 credit for clear, shallow water.

62 [1] Allow 1 credit for Quaternary Period.

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

— The glacier blocked the previous Allegheny River.

— Ice covered the original river channel.

— Glacial moraine diverted the river's path.

64 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— glacial deposits

— moraines

— ridges of glacial sediments

65 [1] Allow 1 credit for a student-drawn line that is U-shaped.

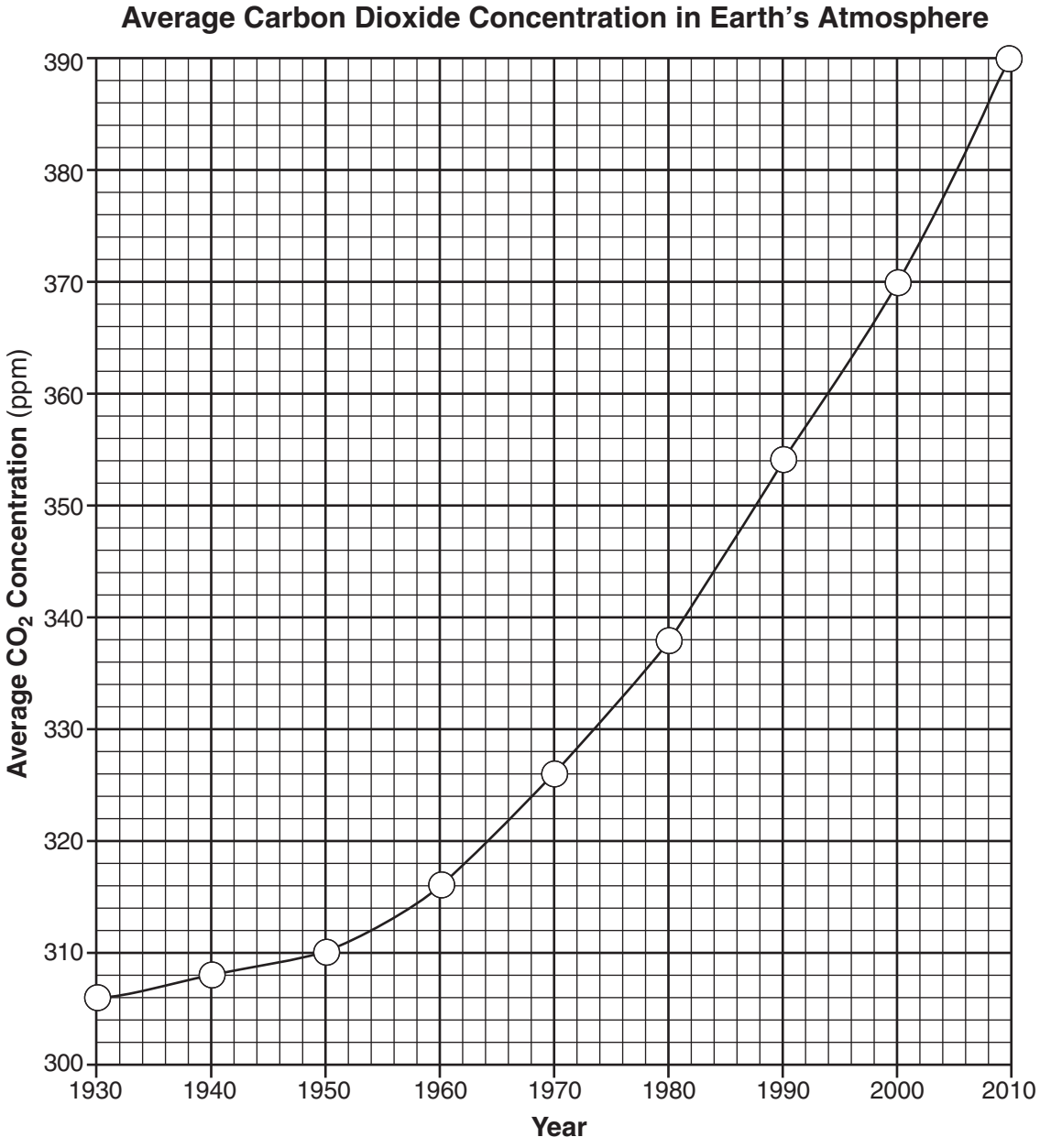
Example of a 1-credit response:

Part C

Allow a maximum of 20 credits for this part.

66 [1] Allow 1 credit if *all nine* plots are within the circles shown below and are connected with a line that passes within the circles.

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 for 2 ppm/y.

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

— methane *or* CH_4

— water vapor *or* H_2O

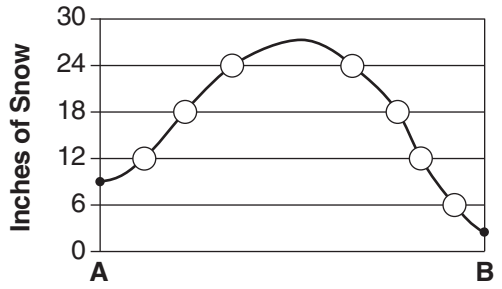
— nitrous oxide *or* N_2O

— ozone *or* O_3

— chlorofluorocarbons/CFCs

69 [1] Allow 1 credit if *all seven* student plots are within the circles shown below and are connected with a line from *A* to *B* that passes within the circles. The line must extend above 24 inches and below 30 inches.

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



70 [1] Allow 1 credit for any value from 93 mi to 107 mi.

71 [1] Allow 1 credit for any value greater than 1 in, but less than 6 in.

72 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— southwest

— SW

— west southwest

— WSW

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

— car accidents

— power outages

— damage to homes

— flooding

— trees falling on electrical lines/houses/cars

— heart attack from shoveling

— carbon monoxide poisoning

— no heat in the building

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

— psychrometer

— wet- and dry-bulb thermometer

— hygrometer

75 [1] Allow 1 credit for 100%.

76 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Air expands as it moves up the mountain.

— The molecules move farther apart as the air rises.

— Lower pressure at higher altitudes allows molecules to move farther apart.

— The less dense air at higher altitudes allows the air molecules to spread out.

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

Air temperature at *B*:

— warmer

— higher

— increased

Relative humidity at *B*:

— lower

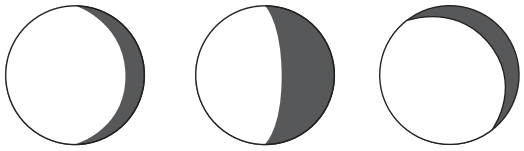
— drier

— decreased

78 [1] Allow 1 credit for circling only position 6.

79 [1] Allow 1 credit for a gibbous Moon, shaded generally on the right side of the diagram. The shaded area must be less than half of the circle.

Examples of 1-credit responses:



80 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— The Moon's period of rotation equals its period of revolution.

— The Moon rotates and revolves once in 27.3 days.

— The Moon rotates and revolves at the same rate.

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

— The Moon is closer to Earth so gravity is greater.

— The Sun is much farther away.

82 [1] Allow 1 credit for any time from 6:33 p.m. to 6:45 p.m. *or* any military time from 18:33 to 18:45.

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

— weathering and/or erosion

— rock abrasion

— transport by running water

— wave action

84 [1] Allow 1 credit for any value from 3.0 to 3.2 times farther.

85 [1] Allow 1 credit for Neptune.

Regents Examination in Physical Setting/Earth Science

January 2013

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

The *Chart for Determining the Final Examination Score for the January 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 Thursday, January 24, 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

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