FOR TEACHERS ONLY

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

LIVING ENVIRONMENT

Tuesday, June 17, 2025 — 1:15 to 4:15 p.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: https://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 Living Environment. Additional information about scoring is provided in the publication *Information Booklet for Scoring Regents Examinations in the Sciences*.

Allow 1 credit for a correct response to each item.

At least two science teachers must participate in the scoring of the Part B–2, Part C, and Part D 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 box labeled "Total Raw Score." Then the student's raw score should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: https://www.nysed.gov/state-assessment/high-school-regents-examinations on Tuesday, June 17, 2025. 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.

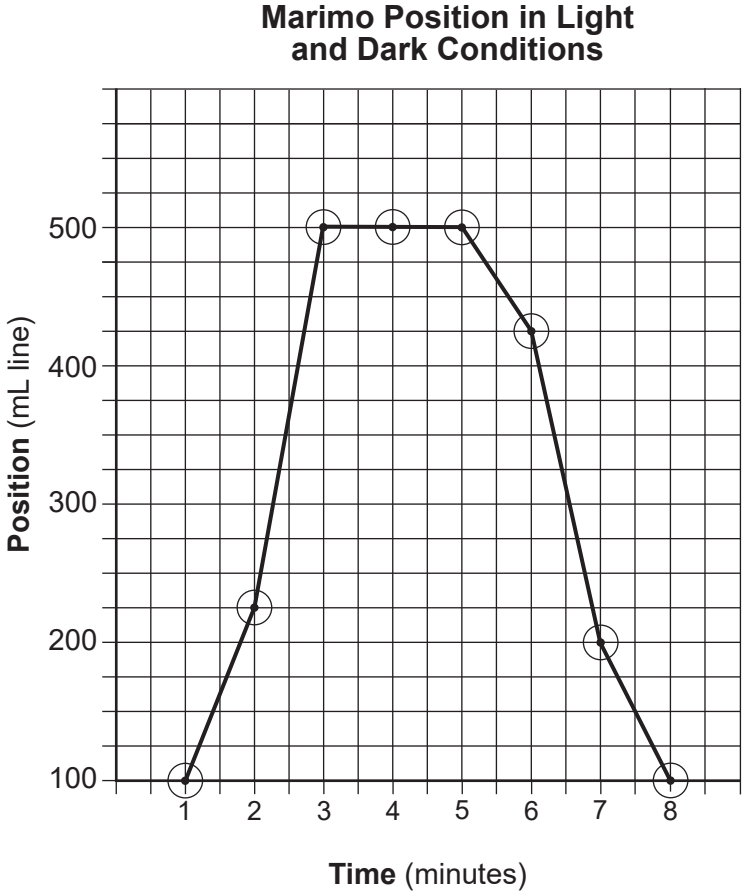
Part B–2

44 [1] Allow 1 credit for marking an appropriate scale on the grid provided, without any breaks in the data, on each labeled axis.

Note: Do *not* allow credit if the grid is altered to accommodate the scale.

45 [1] Allow 1 credit for correctly plotting the data and connecting the points and surrounding each point with a small circle.

Example of a 2-credit graph for questions 44-45:



Note: Allow credit if the points are plotted correctly, but not circled.

Do *not* assume that the intersection of the x- and y-axes is the origin (0,0) unless it is labeled. An appropriate scale only needs to include the data range in the data table.

Do *not* allow credit if points are plotted that are not in the data table, e.g., (0,0), or for extending lines beyond the data points.

46 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— As the time of light exposure increases, the position of the marimo balls in the cylinder is higher.

— The longer the marimo balls are exposed to light, the more they float.

— When marimo balls are not exposed to light, they do not float/they sink.

— As the light exposure increases, the marimo balls float higher.

47 4

48 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Floating closer to the surface during the day provides them with more light for photosynthesis.

— Being near the surface increases their ability to perform photosynthesis.

— Marimo will grow better if they can float and absorb more light for photosynthesis.

— There is more light near the surface of the water.

49 1

50 1

51 [1] Allow 1 credit for describing how the graph would appear 20 or more years after 1995 if the study had continued to that point and supporting the answer. Acceptable responses include, but are not limited to:

— It would be about the same because the environment may have reached a state of long-term stability/climax community.

— New tree species would appear and increase while the spruces and others would decrease because succession would continue.

— There would be fewer shrubs and more spruce trees because succession would continue.

— There would be mostly grasses and shrubs if an ecosystem was disturbed by a forest fire or flood.

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

— gamete/sex cell production

— sex hormone production

— meiotic cell division

53 [1] Allow 1 credit for identifying species 1 as most likely to undergo a population increase in the future, and supporting the answer. Acceptable responses include, but are not limited to:

— Species 1, because the carrying capacity for this population is far above the number of the species that are presently living there.

— Species 1, because it is the only one whose population is below the carrying capacity.

— Species 1, because they have more resources available.

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

— Energy is required to move the molecules.

— Molecules of *A* are being moved from an area of low concentration to an area of high concentration.

— Cellular energy is being used to transport molecules through the cell membrane.

— Molecules are being moved against the concentration gradient.

55 [1] Allow 1 credit for ATP as the molecule that is involved in the "Energy Use" process, and identifying the process that produces it. Acceptable responses include, but are not limited to:

— Molecule: ATP

— Process: cellular respiration/respiration/aerobic respiration

Part C

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

— It is a favorable adaptation because they get to hunt fairly slow-moving prey with fangs rather than fast prey with claws and teeth.

— They have a greater variety of food available. This should help them to survive and reproduce.

— There is less competition for food.

— The honey badgers are not affected by the venom in the venomous snakes.

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

— The antivenom could contain some proteins from the horse unrelated to the antibodies, and they could cause a reaction.

— The horse proteins could be interpreted as a foreign antigen even though they are being injected to help the person.

— The person's immune system could interpret the antibodies contained in the antivenom as a pathogen and attack them.

58 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Loss of birds reduces the biodiversity of the ecosystem, decreasing stability.

— There will be an increase in insect pests.

— Having fewer birds could impact the food web of an ecosystem.

— Having fewer birds could result in fewer flowers being pollinated.

— Most North American birds control insect populations, help pollinate flowers, spread seeds, and help regenerate forests.

59 [1] Allow 1 credit for identifying the grassland habitat as the habitat with the greatest decline in birds since 1970 and describing the cause of the loss of birds in that habitat. Acceptable responses include, but are not limited to:

— Grasslands have been converted to farmland.

— Grasslands have been turned into farms, so there is less biodiversity to support the birds.

— The use of pesticides in grasslands has reduced insects as food for birds.

— Grassland birds that consume insects contaminated with pesticides might die.

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

— Maintain migratory paths with resources for the bobolink.

— Pass legislation to protect the bobolink.

— Protect and grow fields/grasslands so that the bobolink has nesting sites.

— Keep house cats inside.

61 [1] Allow 1 credit for identifying modern dogs as the species most closely related to the gray wolf and supporting the answer with evidence from the evolutionary tree diagram. Acceptable responses include, but are not limited to:

— Modern dogs and the gray wolf share a more recent common ancestor than the gray wolf and the African golden wolf.

— According to the tree, the gray wolf and the modern dog species share a more recent common ancestor.

— Modern dogs and gray wolves are on the same branch of the evolutionary tree.

62 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— Since people favored the "puppy-dog" trait, they bred these dogs, and the frequency of the trait increased over time.

— Animals with the eyebrow-raising gene were more likely to be accepted by humans and cared for. This increased their chance of survival, and the trait was passed on to their offspring. The frequency of the trait would increase.

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

— The altered enzymes are much faster, so they might be useful for recycling these plastics.

— The original enzyme was much slower, so it wasn't as efficient in breaking down specific plastics.

— The original enzyme digested around 30% of the plastic, but the new enzymes digested 90%.

— The altered enzymes broke the plastic down in hours, compared to the original enzyme that took days.

— The new variations of the enzymes are much faster than the original.

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

— Scientists could insert/delete/substitute DNA segments to alter the bacterial genes.

— They used genetic engineering/CRISPR to alter the DNA of the bacteria.

— Enzymes could be used to cut/insert DNA into the bacteria.

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

— The use of the enzymes can increase the amount of plastic that's recycled.

— Using enzymes enables us to recycle more plastic.

— The building blocks can be used to make new, useful products.

— There would be less plastic waste in landfills.

66 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

— These enzymes have specific shapes that fit with only the specific plastic.

— Enzymes have specific parts that determine the molecules that they work with.

— Enzymes have specific shapes that influence both how they function and how they interact with other molecules.

— The enzyme was genetically modified to work with this specific plastic, but not other substances.

67 [1] Allow 1 credit for identifying the relationship between the collared lizard and the grasshopper mouse as negative and supporting the answer. Acceptable responses include, but are not limited to:

— The relationship is negative because both species compete for the pallid-winged grasshopper.

— Negative, because the lizard and the grasshopper mouse compete with each other for food. Either species would gain if the other was no longer present.

68 [1] Allow 1 credit for explaining how removing the red-tailed hawk would affect the prickly pear cactus population in this food web and supporting the answer with information from the food web. Acceptable responses include, but are not limited to:

— The hawk feeds on the wood rat. Without the hawk, the wood rat population would increase, eating more of the prickly pear cactus.

— The hawk feeds on the western diamondback rattlesnake, which feeds on antelope squirrels and wood rats, which both feed on the prickly pear cactus. With more rattlesnakes, there will be fewer antelope squirrels and rats, so less of the cactus will be eaten.

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

— There would not be enough energy available to support the animals. The base of the pyramid represents the producers/plants where energy enters the ecosystem. Energy is released to the environment at each level, and there is less energy in the base than in the herbivores.

— The food chain would collapse. There would not be enough energy captured to support the other organisms. Less energy would be available at each feeding level.

— There isn't enough energy available to support the levels above the producers, so those levels will be reduced.

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

— Populations having more diversity help increase the chances that some can survive if their environment changes.

— If the environment changes in the future, it's more likely that some of the red wolves would have the traits that would help them survive change.

— The red wolves would be less likely to go extinct, impacting the population.

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

— The environment often affects gene expression.

— The appearance may have been affected by the nutrition that Garlic 2.0 received.

— There may have been a random mutation.

— There may have been an epigenetic change.

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

— The genes in Garlic 2.0 were all present in the embryo implanted in the surrogate mother.

— The nutrients and oxygen for growth were obtained from the surrogate, but the genes were present in the implanted embryo.

— All the DNA from Garlic 2.0 came from the original Garlic.

Part D

73 2

74 4

75 2

76 3

77 [1] Allow 1 credit for four (4).

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

— The sizes of the segments determine how far the segments move.
— Smaller segments will move farther in the gel.
— The electrical current moves smaller pieces faster.

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

— If an individual's activity level increases, then his or her pulse rate will increase.
— Exercise affects pulse rate.

Note: Do *not* allow credit for a hypothesis in the form of a question.

80 [1] Allow 1 credit for predicting a number less than 45 of clothespin squeezes expected had the student performed a sixth trial and supporting the answer. Acceptable responses include, but are not limited to:

— More wastes built up.
— The burning sensation became painful.
— less oxygen, less ATP
— The trend in the number of clothespin squeezes is decreasing.

81 2

82 4

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

— The data should include students who smoke and who do not smoke.

— More data are needed about students who smoke.

— The student's data should distinguish between smokers and nonsmokers.

84 [1] Allow 1 credit for vegetarian finch and supporting the answer. Acceptable responses include, but are not limited to:

— The environment had fewer trees and insects; the vegetarian finch doesn't live on trees and eats seeds.

— There are few trees or insects on the island. The vegetarian finch does not require either; the other finches do.

85 [1] Allow 1 credit for warbler finch and supporting the answer. Acceptable responses include, but are not limited to:

— the warbler finch, because they both eat insects in trees

— warbler finch, since they eat the same thing in the same place

— the warbler finch, because it also feeds in trees

— warbler finch, because they have the same niche

The *Chart for Determining the Final Examination Score for the June 2025 Regents Examination in Living Environment* will be posted on the Department's web site at: https://www.nysed.gov/state-assessment/high-school-regents-examinations on the day of the examination. Conversion charts provided for previous administrations of the Regents Examination in Living Environment 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.nysed.gov/state-assessment/teacher-feedback-state-assessments.

2. Click Regents Examinations.

3. Complete the required demographic fields.

4. Select the test title from the Regents Examination dropdown list.

5. Complete each evaluation question and provide comments in the space provided.

6. Click the SUBMIT button at the bottom of the page to submit the completed form.

Map to Core Curriculum

June 2025 Living Environment

Standards	Question Numbers			
	Part A 1–30	**Part B–1 31–43**	**Part B–2 44–55**	**Part C 56–72**
Standard 1 — Analysis, Inquiry and Design				
Key Idea 1		32	48	59, 61, 69
Key Idea 2				
Key Idea 3		31, 37	50	
Appendix A (Laboratory Checklist)			44, 45	
Standard 4				
Key Idea 1	1, 2, 3, 10, 18	41, 43	54	67, 68
Key Idea 2	7, 19, 21, 26, 28			62, 71, 72
Key Idea 3	4, 6, 30	35, 36, 42		56, 70
Key Idea 4	11, 13, 15, 16, 24		52	
Key Idea 5	17, 20, 22, 27, 29		46, 47, 49, 55	57, 64
Key Idea 6	8, 12, 25	33, 34	51, 53	65, 66
Key Idea 7	5, 9, 14, 23	38, 39, 40		58, 60, 63

Part D 73–85	
Lab 1	74, 76, 77, 78
Lab 2	79, 80, 82, 83
Lab 3	73, 75, 84, 85
Lab 5	81