DEPARTMENT of EDUCATION
Louisiana Believes

Science Grade 8 Practice Test Answer Key

LEAP 2025

This document contains the answer keys, rubrics, and Scoring Notes for items on the Science Grade 8 Practice Test. Additional Practice Test resources are available in the LDOE Practice Test Library.

Session	Set	Sequence	Item Type	Key	Point Value	Alignment
1	Opal	1	TEI	See Rubric	1	PE: 8-MS-ESS3-1 DCI: MS.ESS3A.a CCC: Cause and Effect
1		2	TEI	See Rubric	1	PE: 8-MS-ESS3-3 DCI: MS.ESS3C.a CCC: Cause and Effect
1		3	TPD: MS/ MC	A, C/C	2	PE: 8-MS-ESS3-1 SEP: 6. Constructing explanations (for science) and designing solutions (for engineering) DCI: MS.ESS3A.a CCC: Cause and Effect
1		4	CR	See Rubric	2	PE: 8-MS-ESS3-3 SEP: 6. Constructing explanations (for science) and designing solutions (for engineering) DCI: MS.ESS3C.a CCC: Cause and Effect
1	Glowing Jellyfish	5	MC	C	1	PE: 8-MS-LS3-1 DCI: MS.LS4C.a CCC: Cause and Effect
1		6	TEI	See Rubric	2	PE: 8-MS-LS3-1 SEP: 2. Developing and using models DCI: MS.LS3A.a CCC: Cause and Effect
1		7	MC	A	1	PE: 8-MS-LS4-6 DCI: MS.LS4C.a CCC: Cause and Effect
1		8	CR	See Rubric	2	PE: 8-MS-LS4-6 SEP: 5. Using mathematics and computational thinking DCI: MS.LS4C.a CCC: Structure and Function
1	Solar Cooker	9	MS	B, D	1	PE: 8-MS-PS3-3 DCI: MS.PS3B.c CCC: Energy and Matter
1		10	MC	D	1	PE: 8-MS-PS3-3 SEP: 6. Constructing explanations (for science) and designing solutions (for engineering) DCI: ETS.MS.1B.a CCC: Energy and Matter
1		11	TEI	See Rubric	2	PE: 8-MS-PS3-5 SEP: 7. Engaging in argument from evidence DCI: MS.PS3B.a CCC: Energy and Matter

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Session	Set	Sequence	Item Type	Key	Point Value	Alignment
1	Solar Cooker	12	CR	See Rubric	2	PE: 8-MS-PS3-3 SEP: 6. Constructing explanations (for science) and designing solutions (for engineering) DCI: MS.ETS1A.a CCC: Energy and Matter
1	Standalone Items	13	MS	A, E	1	PE: 8-MS-ESS2-3 SEP: 4. Analyzing and interpreting data DCI: MS.ESS2B.a
1		14	TPD: MS/ MC	A, D/ B	2	PE: 8-MS-LS4-2 DCI: MS.LS4A.b CCC: Patterns
1		15	TPD: MC/ MC	B/C	2	PE: 8-MS-ESS1-4 SEP: 6. Constructing explanations (for science) and designing solutions (for engineering) DCI: MS.ESS1C.a CCC: Scale, Proportion and Quantity

Item Types and Scoring:

- Multiple-choice (MC) questions with four answer options and only one correct answer. All MC items are worth one point each.

  Multiple-select (MS) questions with five to seven answer options and more than one correct answer. For MS items, the question identifies the number of correct answers, unless it is part of a Two-part Dependent (TPD). In a TPD, the question in Part B will then be worded to "select all that apply." All MS items are worth one point each.

- Technology Enhanced Items (TEI): uses technology to capture student comprehension in authentic ways. TE items are worth up to two points and may include item types such as, but not limited to, drag and drop, dropdown menus, and hot spots.

- Two-part Items: require students to answer two related questions, worth a total of two points. Two-part items may combine MC, MS, and/or TE item types.
  - Two-part Dependent (TPD): the first part must be correct in order to earn credit for the second part. TPDs are scored as follows:
    - If both parts are correct, score is 2.
    - If Part A is correct and Part B is incorrect or partially correct, score is 1.
    - If Part A is incorrect, score is 0 regardless of Part B.
  - Two-part Independent (TPI): each part is scored independently, with each part worth one point.

- Constructed Response (CR): requires a brief response provided by the student and will be scored using a 2-point rubric. These items may require a brief paragraph, a few sentences, and/or completion of a chart.

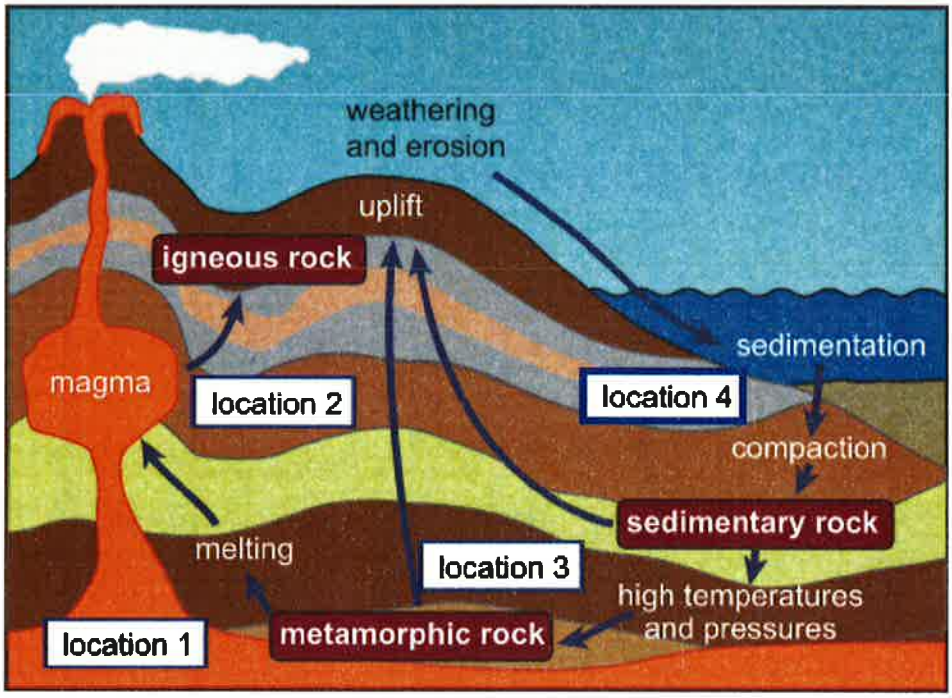
- Extended Response (ER): asks students to write an in-depth response that expresses the students' ability to apply all three dimensions of the LSS for Science and will be scored using a 9-point rubric.

Session 1 Item 1 (TEI)

The locations of mineral and gem formation depend on different Earth processes. Some gems need heat, extreme pressure, or even a certain type of rock layer to form.

Which location in the figure shows where opal is **most likely** to form?

Select the correct location.



Source: Allen Institute.

Note: On Accommodated form, this TEI item has been adapted to a multiple choice item, with answer choice D as the correct answer.

Session 1 Item 2 (TEI)

Certain steps in the mineral extraction process can often have a lasting impact on Earth.

Drag the correct labels into the table to show a **primary** environmental impact and a **secondary** environmental impact of a step in the opal extraction process.

Not all labels will be used.

Risk of flooding in the area decreases.

Concentration of minerals in the ground is small.

Step in Mining Process	Primary Environmental Impact	Secondary Environmental Impact
Land is cleared for mining and drilling of minerals.	Local vegetation is damaged or removed.	Animals move to new locations in search of food sources.

Session 1 Item 4 (CR)

Identify **two** potential improvements to the opal extraction process and explain how these improvements could minimize harm to the environment.

Scoring Information	
Score	**Description**
2	Student's response correctly identifies two potential improvements to the opal extraction process and explains how both improvements could minimize harm to the environment.
1	Student's response correctly identifies one potential improvement to the opal extraction process and explains how this improvement could minimize harm to the environment, but does not identify or explain a second improvement.
0	Student's response does **not** correctly identify or explain an improvement to the opal extraction process. **OR** Student's response is blank, irrelevant, or too brief to evaluate.

SCORE POINTS

Scoring Notes:

- Identifies one improvement to the opal extraction process and explains how the improvement minimizes harm to the environment (1 point)
- Identifies a second improvement to the opal extraction process and explains how the second improvement minimizes harm to the environment (1 point)

Examples include:

- Miners could use hand tools instead of heavy machinery to reduce the emission of greenhouse gases and limit the clearing of land for mining, which would help maintain the local ecosystem for plants and animals.
- Once mining in an area is complete, trees and plants can be planted and added back to the area to help with removing CO_2 from the atmosphere. Compacted soil and land can also be dug back up and loosened to improve water flow and drainage.

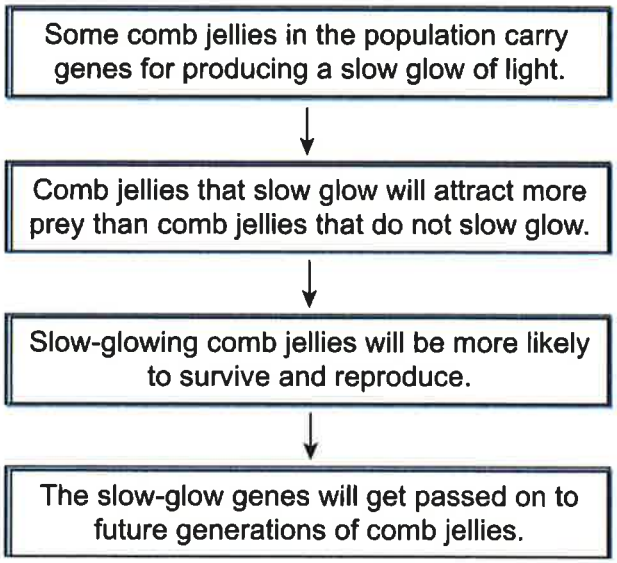
Accept other reasonable answers.

Session 1 Item 6 (TEI)

A large population of comb jellies was found living in an area with a large food source. After a long period of overfishing, the food source in the area significantly decreased. Scientists want to build a model to describe how the change in the availability of food may affect different types of comb jellies in the population.

Drag the statements into the correct order to complete the outline for the scientists' model.

Each statement will be used once.



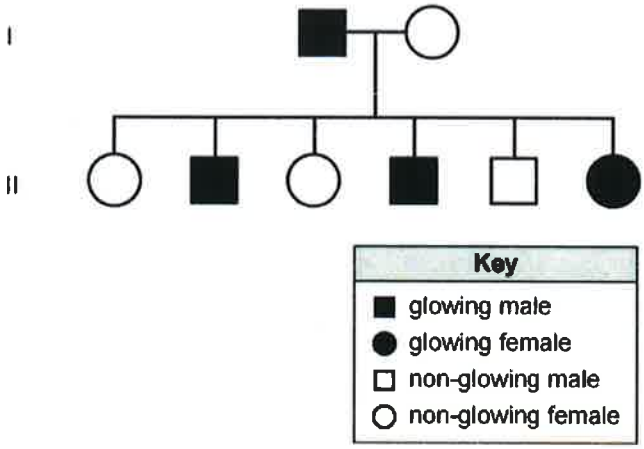
Scoring Notes:

This item is worth 2 points. Partial credit (1 point) will be awarded if half or more of the student responses are correct. For this item, the key contains 4 correct responses; therefore 1 point will be awarded if the student selects 2 or more correct responses.

Session 1 Item 8 (CR)

The slow-glow gene for bioluminescence is inherited as a dominant trait. One of two rabbits that is born with the bioluminescence gene is a male. This male rabbit is mated with a female rabbit that does not have the bioluminescence gene. The offspring resulting from this mating experiment are shown in the pedigree chart.

Rabbit Pedigree Chart



Unlike some jellyfish and comb jellies, which are often helped by their ability to glow, rabbits with bioluminescence genes can be more easily spotted by predators.

Session 1 Item 8 (CR), continued

Use the pedigree chart to describe how the probability of rabbit offspring inheriting bioluminescence would change after several generations in the wild. Explain how natural selection would affect this probability.

Scoring Information	
Score	**Description**
2	Student's response correctly describes how the probability of rabbit offspring inheriting bioluminescence would change after several generations in the wild and correctly explains how natural selection would affect this probability.
1	Student's response correctly describes how the probability of rabbit offspring inheriting bioluminescence would change after several generations in the wild OR correctly explains how natural selection would affect this probability.
0	Student's response does **not** correctly describe how the probability of rabbit offspring inheriting bioluminescence would change after several generations in the wild **or** correctly explain how natural selection would affect this probability. **OR** Student's response is blank, irrelevant, or too brief to evaluate.

SCORE POINTS

Scoring Notes:

- Description of how the probability of rabbit offspring inheriting bioluminescence would change after several generations in the wild (1 point)
- Explanation of how natural selection would affect the probability of rabbit offspring inheriting bioluminescence (1 point)

Examples include:

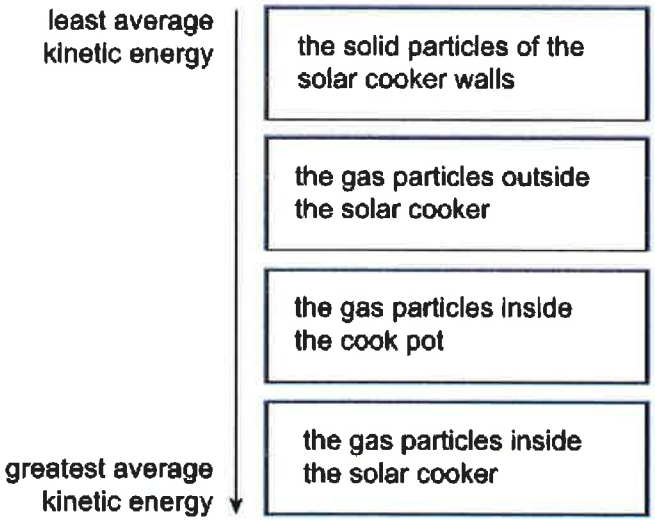
- The probability of rabbit offspring inheriting bioluminescence would decrease over time because the slow-glow gene would increase the likelihood that glowing rabbits are preyed on by predators. This means there would be fewer surviving parents who can pass on the slow-glow trait to offspring.

Accept other reasonable answers.

Session 1 Item 11 (TE)

Drag the different parts of the solar cooker design into the correct order from **least** to **greatest** based on the average kinetic energy of the particles in each part.

Each part will be used once.



Scoring Notes:

This item is worth 2 points. Partial credit (1 point) will be awarded if half or more of the student responses are correct. For this item, the key contains 4 correct responses; therefore 1 point will be awarded if the student selects 2 or more correct responses.

Session 1 Item 12 (CR)

The students have decided to test how removing the reflective lid will affect the efficiency of the solar cooker. Explain how this change will impact the transfer of thermal energy in the solar cooker design and describe **one** possible design improvement the students can make to compensate for this change.

Scoring Information	
Score	**Description**
2	Student's response correctly explains how removing the reflective lid will impact the transfer of thermal energy in the solar cooker design and describes a possible design improvement to the solar cooker to compensate for the change.
1	Student's response correctly explains how removing the reflective lid will impact the transfer of thermal energy in the solar cooker design OR describes a possible design improvement to the solar cooker to compensate for the change.
0	Student's response does **not** correctly explain how removing the lid will affect the transfer of thermal energy **or** describe a possible design improvement to the solar cooker. **OR** Student's response is blank, irrelevant, or too brief to evaluate.

SCORE POINTS

Scoring Notes:

- Explanation of how removing the lid will reduce the transfer of thermal energy into the solar cooker (1 point)
- Description of a possible design improvement to the solar cooker (1 point)

Examples include:

- Removing the lid will decrease the amount of sunlight getting into the solar cooker, which means less heat will be emitted by the black-colored interior. Students can tilt the solar cooker device at an angle toward the Sun so that more sunlight can directly enter through the glass.
- Taking the lid off will reduce the efficiency of the solar cooker because less light is trapped by the interior of the cooker. Students can replace the glass cover with another material that better transmits sunlight at greater angles.

Accept other reasonable answers.