2023–2024 Gr8 Science Benchmark Unit 1

Answer Key

Question 1. A – 1 Point

Standards

MS–LS4–4

Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

Question 2. B – 1 Point

Standards

MS–LS4–5

Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.

Question 3. A – 1 Point

Standards

MS–LS4–4

Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

Question 4. A – 1 Point

Standards

MS–LS4–4

Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

Question 5. B – 1 Point

Standards

MS–LS3–1

Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.

Question 6. C – 1 Point

Standards

MS–LS3–1

Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.

Question 7. D – 1 Point

Standards

MS–LS4–1

Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.

Question 8. D – 1 Point

Standards

MS–LS4–2

Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.

Question 9. C – 1 Point

Standards

MS-LS4-2
Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.

Question 10. extinct – 1 Point

Standards

MS-LS4-1
Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.

Question 11. related – 1 Point

Standards

MS-LS4-2
Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.

Question 12. massive – 1 Point

Standards

MS-LS4-1
Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.

Question 13. O – 3 Points

Standards

MS-LS4-5
Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.

Question 14. O – 2 Points

Standards

MS-LS4-4
Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

Question 15. O – 6 Points

Standards

MS-LS4-6
Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

Question 16.

> Response 1: O – 3 Points
> Response 2: O – 3 Points

Standards

MS-LS4-2
Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.

Question 17. A – 1 Point

Standards

MS-LS4-3
Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.

Question 18.

Response 1: B – 1 Point

Response 2: B – 1 Point

Response 3: A – 1 Point

Standards

MS-LS4-6
Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

Question 19. A – 1 Point

Standards

MS-LS4-6
Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

Question 20. C – 1 Point

Standards

MS-LS4-6
Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.