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## Battle Creek Area Mathematics and Science Center Summative Assessment - End of Unit Exam

Attached is the Summative Assessment for the Battle Creek Area Mathematics and Science Center Science Unit, *Systems and Survival*. This assessment includes a number of multiple-choice questions, one constructed response question, and several items from the unit's Student Journal. Summative assessment of targeted concepts and skills provides feedback to the individual student and the teacher on conceptual understanding, demonstration of achievement of selected content, and determination of readiness for refinement and application of new knowledge and skills. The inclusion of the Student Journal items provides the opportunity to determine the level of understanding and ability of key knowledge and skills targeted in this unit. The Student Journal items evaluate individual student learning and the effectiveness of instruction. Rubrics are included in the Summative Assessment to ensure consistent scoring of the items. All components of this assessment provide multiple opportunities to assess student understanding of each science content expectation addressed in the unit.

The BCAMSC Summative Assessments are in draft form and may change based on student performance and teacher feedback. The BCAMSC Outreach Staff will use data collected from participating districts to make adjustments for the following school year.

If you have any questions or suggestions regarding the Summative Assessment, please direct your calls to Nancy Karre at (269) 965-9584 or email: [nancy@bcamsc.org](mailto:nancy@bcamsc.org).



A S S E S S M E N T

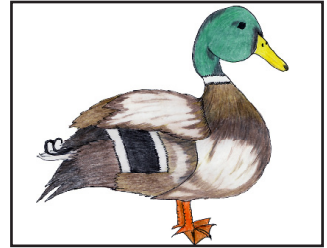
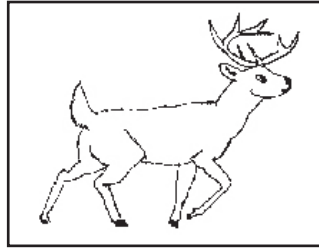
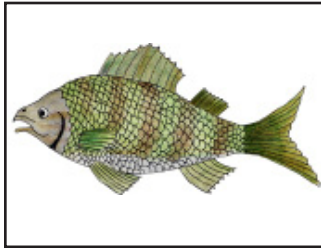


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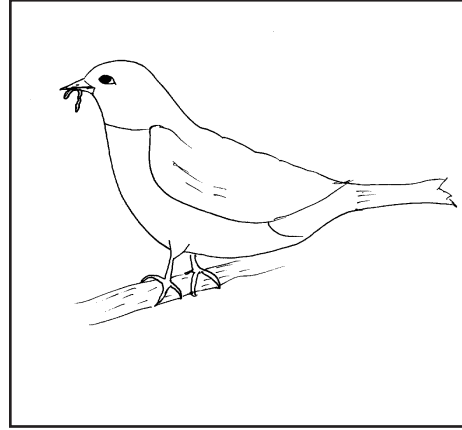
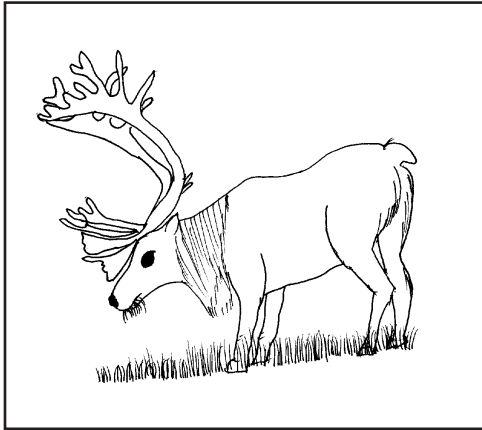


Date: \_\_\_\_\_

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1. When the weather is cold, bees do not move very fast and stay in or close to their hives. This is because they are:
    - a. warm-blooded vertebrates.
    - b. warm-blooded invertebrates.
    - c. cold-blooded vertebrates.
    - d. cold-blooded invertebrates.



2. Choose the BEST classification of the animals pictured above.
  - a. producers
  - b. egg-layers
  - c. vertebrates
  - d. warm-blooded
3. A behavioral characteristic that helps any living organism to survive in its environment is:
  - a. camouflage
  - b. a needs to survive
  - c. determined by the climate
  - d. an adaptation



4. The reindeer and the robin are very different looking and acting animals. The robin has two legs, wings, feathers, can fly, lays eggs, and eats mainly worms and insects. The reindeer has four legs, antlers, fur, walks or runs, gives birth to live babies, and eats mainly grasses and shrubs. Scientists, however, group robins and reindeer together because:

- a. scientists classify the animals alphabetically.
- b. the reindeer and robin live in the same regions of North America.
- c. the reindeer and robin are warm-blooded vertebrates.
- d. the robin and the reindeer are prey to wolves and mountain lions.

5. Birds have hollow, lightweight bones and wings. This characteristic of birds can be classified as:

- a. behavioral adaptation.
- b. physical adaptation.
- c. learned behavior.
- c. instinctive behavior.

6. A volcanic eruption may lead to the extinction of nearby plants and animals because:

- a. the volcano erupted suddenly and the animals were unable to run to safety.
- b. the plants and animals were unable to adapt to the environmental conditions after the volcanic eruption.
- c. the lava was too hot for the plants and animals in the region to survive.
- d. the volcanic dust covered the area and was too dense for the plants and animals to survive.



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7. Brown bear cubs stay with their mother for about two and a half years. The bear cubs watch their mother closely as she fishes in Alaska when the salmon swim upstream for summer spawning. Soon it will be the cubs' turn to catch dinner. This characteristic of brown bear cubs and their mother can be classified as:
- a. behavioral adaptation and learned behavior.
  - b. behavioral adaptation and instinctive behavior.
  - c. physical adaptation and learned behavior.
  - d. physical adaptation and instinctive behavior.
8. Mrs. Nelson's 5th grade science class took a field trip to the zoo. They observed a mother zebra and her colt eating grass. The mother and her colt looked very similar. They had the same color of hair and their striped markings looked the same. The similarities between the mother zebra and her colt are due to:
- a. heredity
  - b. learning
  - c. instinct
  - d. habit
9. When the mother zebra and her colt joined the rest of the herd, it became difficult to see them clearly. The trait of blending in is:
- a. an adaptive trait called camouflage.
  - b. an instinctive physical trait.
  - c. an acquired trait called migration.
  - d. an adaptive trait known as habit.
10. What characteristics of the mother and young zebra above show that parents pass physical traits to their young?
- a. sharp teeth
  - b. ability to blend in
  - c. hair color and markings
  - d. ability to run from predators



**Systems and Survival (cont.)**



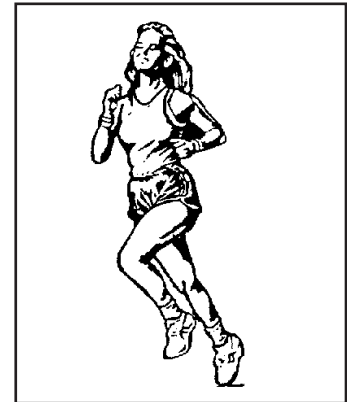
11. Jonathon can roll his tongue, stand on his head, is left-handed, and has blue eyes. Which is NOT an inherited characteristic?

- a. roll tongue
- b. stand on head
- c. left-handed
- d. blue eyes

12. Ralph's dog can wag his tail, scratch behind his ears, chase rabbits, and catch a Frisbee. Which is a learned behavior?

- a. wag tail
- b. scratch behind ears
- c. chase rabbits
- d. catch Frisbee

Sally has been training to run a marathon. She practiced running long distances, ate a healthy diet, and got plenty of rest. Finally, the day of the race arrived and Sally registered for the race.



13. Sally is given a cup of water as she passes the eight-mile marker. What is the MOST important reason for Sally to drink water during the race?

- a. to reduce her heart rate
- b. to replace fluids lost by sweating
- c. to prevent her body from sweating
- d. to increase her body temperature

14. Sally began the marathon at the sound of the buzzer. How did Sally's skeletal and muscular systems work together to help her run?

- a. The muscles provide support for the bones and the bones transport oxygen.
- b. The muscles help transport nutrients to the bones and joints.
- c. The bones transport energy to the muscles to help her run faster.
- d. The skeleton provides support and the muscles move the bones.



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15. A man washing his car accidentally sprayed Sally with the hose as she ran by. Which body system let Sally know the temperature of the water?
- a. her skeletal system
  - b. her nervous system
  - c. her digestive system
  - d. her respiratory system
16. After the race, Sally ate a large meal. Her body needed and used the nutrients from the meal. Choose two body systems that are mainly involved in obtaining nutrients from the food Sally ate.
- a. nervous and endocrine system
  - b. skeletal and muscular system
  - c. digestive and excretory system
  - d. digestive and circulatory system
17. Which of the following describes systems that must work together to bring oxygen to a muscle?
- I. Digestion
  - II. Respiratory
  - III. Circulation
  - IV. Reproduction
- a. I and II
  - b. II and III
  - c. III and IV
  - d. I and IV
18. Choose the tools paleontologists use as evidence of living things and the environment millions of years ago.
- a. petri dishes
  - b. fossils
  - c. telescopes
  - d. weather patterns



19. Kay, Shawn, and Brad were observing hermit crabs in their classroom habitats. They made the following observation chart to share with the rest of the class.

Hermit Crab Observations

When making their chart, Kay, Shawn, and Brad had to decide which of their observations were physical characteristics and which observations were behavioral characteristics. Which of the following BEST completes the following statement? Physical characteristics are:

Physical Characteristics	Behavioral Characteristics
10 legs - 6 visible front legs	Finds a discarded snail shell to carry on its back.
2 antennae	Eats dead and decomposing plant and animal material.
Eyes at the end of eyestalks	Climbs on sticks, rocks, and other items in the habitat.
Large claw on left front leg	Digs tunnels and burrows in the sand.
Small claw on right front leg	Pulls inside its shell to hide or rest.
Coloring of body is grayish brown	Carries its shell everywhere it goes in the habitat.
White underbody	Climbs on top and over one another.
Invertebrate	Signals or waves with its claw in the air.

- a. characteristics that can be measured with a ruler.
  - b. traits and body structures of an organism.
  - c. all characteristics that help an organism to survive.
  - d. characteristics that show how an organism moves.
20. Choose the evidence that Kay, Shawn, and Brad used to list invertebrate as a physical characteristic of the hermit crab.
- a. The hermit crab lays eggs.
  - b. The hermit crab can live on land and water.
  - c. The hermit crab adjusts its body temperature.
  - d. The hermit crab has an exoskeleton.

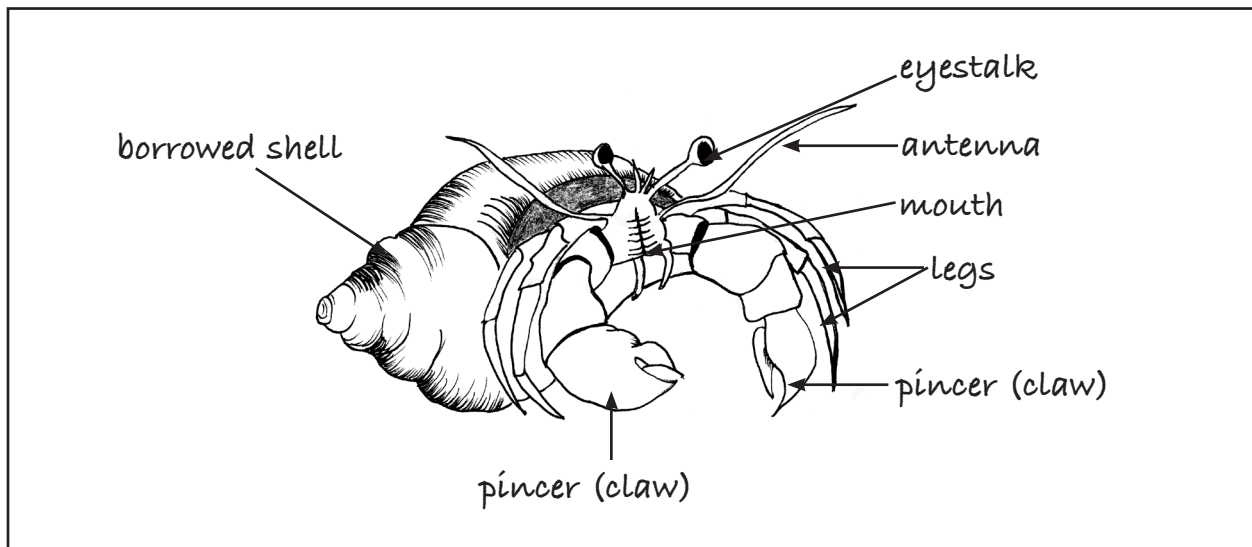




21. The students observed that as the hermit crabs grew larger, they changed shells as one of their behavioral characteristics. Choose the BEST answer that describes how changing shells might help the hermit crab to survive. Hermit crabs change shells:

- a. to play and socialize with other hermit crabs in the habitat.
- b. to have a large enough shell to hide in when predators are near.
- c. to demonstrate that they are adult hermit crabs with large shells.
- d. for camouflage when the environment changes.

22. The hermit crab has physical characteristics that help it to survive. Choose one physical trait of the hermit crab and describe how it helps the animal to survive.



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**Systems and Survival (cont.)**  
**Answer Key**

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23. Write a paragraph that explains how scientists use fossils to tell about how life existed on Earth millions of years ago.

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Read the paragraph below and answer the questions:

Deforestation

Deforestation is the removal or destruction of a large area of trees. Many times poor countries clear large forests to make room for farms to grow crops and raise animals for food. The removal or destruction of large forests has resulted in changes in climate and environments. Trees play a large role in the temperature, soil erosion, production of oxygen in the air, and taking in of carbon dioxide.

24. What is the main idea of the paragraph above?

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25. How would deforestation affect the ability of plants and animals to survive?

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**Systems and Survival  
Answer Key (cont.)**

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Rubric for Systems and Survival Summative Assessment

(Total Possible Points - 30)

Question #1: When the weather is cold, bees do not move very fast and stay in or close to their hives. This is because they are: (L.EV.05.21)

Answer: d (1 point)

Question #2: Choose the BEST classification of the animals pictured above. (L.EV.05.21)

Answer: c (1 point)

Question #3: A behavioral characteristic that helps any living organism to survive in its environment is: (L.EV.05.11)

Answer: d (1 point)

Question #4: Scientists, however, group robins and reindeer together because: (L.EV.05.21)

Answer: c (1 point)

Question #5: Birds have hollow, lightweight bones and wings. This characteristic of birds can be classified as: (L.EV.05.12)

Answer: b (1 point)

Question #6: A volcanic eruption may lead to the extinction of nearby plants and animals because: (L.EV.05.14)

Answer: b (1 point)

Question #7: This characteristic of brown bear cubs and their mother can be classified as: (L.HE.05.11, L.HE.05.12, L.EV.05.11)

Answer: a (1 point)

Question #8: The similarities between the mother zebra and her colt are due to: (L.HE.05.11, L.HE.05.12)

Answer: a (1 point)



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Question #9: When the mother zebra and her colt joined the rest of the herd, it became difficult to see them clearly. The trait of blending in is: (L.HE.05.11, L.HE.05.12, L.EV.05.11, L.EV.05.12)

Answer: a (1 point)

Question #10: What characteristics of the mother and young zebra above show that parents pass physical traits to their young? (L.HE.05.11)

Answer: c (1 point)

Question #11: Jonathon can roll his tongue, stand on his head, is left-handed, and has blue eyes. Which is NOT an inherited characteristic? (L.HE.05.12)

Answer: b (1 point)

Question #12: Ralph's dog can wag his tail, scratch behind his ears, chase rabbits, and catch a Frisbee. Which is a learned behavior? (L.HE.05.12)

Answer: d (1 point)

Question #13: Sally is given a cup of water as she passes the eight-mile marker. What is the MOST important reason for Sally to drink water during the race? (L.OL.05.41, L.OL.05.42)

Answer: b (1 point)

Question #14: Sally began the marathon at the sound of the buzzer. How did Sally's skeletal and muscular systems work together to help her run? (L.OL.05.41, L.OL.05.42)

Answer: d (1 point)

Question #15: A man washing his car accidentally sprayed Sally with the hose as she ran by. Which body system let Sally know the temperature of the water? (L.OL.05.41, L.OL.05.42)

Answer: b (1 point)

Question #16: Choose two body systems that are mainly involved in obtaining nutrients from the food Sally ate. (L.OL.05.41, L.OL.05.42)

Answer: d (1 point)

Question #17: Which of the following describes systems that must work together to bring oxygen to a muscle? (L.OL.05.41, L.OL.05.42)

Answer: b (1 point)



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Question #18: Choose the tools paleontologists use as evidence of living things and the environment millions of years ago. (L.EV.05.13)

Answer: b (1 point)

Question #19: Which of the following BEST completes the following statement? Physical characteristics are: (L.EV.05.12)

Answer: b (1 point)

Question #20: Choose the evidence that Kay, Shawn, and Brad used to list invertebrate as a physical characteristic of the hermit crab. (L.EV.50.12, L.EV.05.21)

Answer: d (1 point)

Question #21: Choose the BEST answer that describes how changing shells might help the hermit crab to survive. Hermit crabs change shells: (L.EV.05.11)

Answer: b (1 point)

Question #22: Choose one physical trait of the hermit crab and describe how it helps the animal to survive. (L.EV.05.12)

Elements

a. Response accurately describes a physical trait with how it helps the hermit crab to survive: move, get food, hide/protection, dig, sense predators.

Scoring (1 point)

1 - Response includes one element

0 - No response, no elements, can't read the answer

Summative Assessment: Student Journal

Question #23 - Activity #9, Journal Entry: Write a paragraph that explains how scientists use fossils to tell about how life existed on Earth millions of years ago. (L.EV.05.13)

Elements

a. Fossils provide imprints or remains of plants and animals that existed millions of years ago.

b. Scientists compare the imprints or remains of ancient life forms to plants and animals that exist today.

Scoring (2 points)

2 - Response includes both elements

1 - Response includes one element

0 - No response, no elements, can't read the answer



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Question #24 - Activity #10, Journal Entry Question #1: What is the main idea of the paragraph above?  
(L.EV.05.13)

Elements

- a. Student gives a clear and accurate synopsis of main idea of the paragraph.

Scoring (1 point)

- 1 - Response includes element
- 0 - No response, no element, can't read the answer

Question #25 - Activity #10, Journal Entry Question #2: How would deforestation affect the ability of plants and animals to survive? (L.EV.05.14)

Elements

- a. The situation leads to a change in environment. (climate, water supply, food source, air quality, etc.)
- b. The plants and animals are unable to adapt and survive in the changed environment.

Scoring (2 points)

- 2 - Response includes both elements
- 1 - Response includes one element
- 0 - No response, no elements, can't read the answer