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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, *Earth and Me*. 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



Name: \_\_\_\_\_



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

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1. The surface of the Earth is constantly changing. Choose the BEST answer below that describes causes for **slow** changes of the surface of the Earth.
  - a. volcanoes, earthquakes, landslides
  - b. building new homes and roads
  - c. wind, rain, climate
  - d. Earth's rotation on its axis
  
2. Choose the evidence that shows that the surface of the Earth is always changing.
  - a. changes in size and shape of the surface features of Earth
  - b. changes in cities, roads, and buildings
  - c. increase in population of the Earth
  - d. the continued eruption of volcanoes
  
3. Choose the evidence that shows that a rock is made up of minerals.
  - a. The rock is rough and solid.
  - b. The rock has different colored particles.
  - c. The rock is smooth and shiny.
  - d. All rocks are made up of minerals.
  
4. Choose the list that identifies **natural resources**.
  - a. metals, coal, water, soil, and trees
  - b. wood, glass, paper, gold, and plastic
  - c. water, coal, glass, gold
  - d. pop cans, paper, plastic wrap, glass
  
5. Choose the methods humans can use to help the environment.
  - a. build new homes, malls, and roads
  - b. clear forests for farming
  - c. reduce, reuse, renew, and recycle
  - d. manufacture glass from sand



## Earth and Me (cont.)

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6. Mr. Nelson's class was investigating different earth materials. First they observed the different earth materials and compared the size of the particles that make up each earth material. Then they investigated how much water each material would allow to drain through if 50 mls of water was poured onto the earth material. They made the following chart to organize their observations and data:

Earth Materials	Color	Particle Size Comparison	Amount of water drained through
sand	light brown/tan	largest	49 mls of water drained
silt	brown/gray	medium	5 mls of water drained
clay	white	smallest	0 mls of water drained
soil	black/brown	medium, many different particle sizes	27 mls of water drained

Choose the BEST conclusion based on the class data chart.

- Sand has the largest particle size and drained the least amount of water.
- Sand has the smallest particle size and drained the least amount of water.
- Clay has the largest particle size and drained the greatest amount of water.
- Clay has the smallest particle size and drained the least amount of water.



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7. During their soil observations, Mr. Nelson's students discovered that soil appeared to contain shiny pieces of rock, sand, pebbles, dark particles, and pieces of twigs and leaves. Based on their observations, the class concluded that the soil was a mixture. Choose the answer that gives evidence to support their conclusion.
- The class read about the things that make up soil in a book.
  - The class observed that the particles in the soil could be separated.
  - Mr. Nelson told the class that soil was a mixture.
  - The class investigated how plants grow in different soils.
8. Choose the list of materials that can be recycled.
- homes, neighborhoods, malls, and factories
  - paper, metal, glass, and some plastics
  - rocks, sand, soil, clay, and gravel
  - air, water, soil, oil, and plants
9. Carlos was worried about the amount of kitchen vegetable and fruit scraps his family threw away every day. He had learned in school about how some kitchen scraps could be composted. Choose the answer that explains how composting kitchen scraps affects the environment.
- Composting recycles vegetable and fruit scraps into the soil and reduces the amount of waste at the landfill.
  - Composting provides food for animals in the area so the vegetable and fruit scraps are not wasted.
  - Composting increases the amount of oxygen in the atmosphere when the vegetable and fruit scraps rot.
  - The vegetable and fruit scraps absorb pollution and carbon dioxide from the atmosphere when they rot.
10. Water and forests are classified as **renewable resources** because:
- the Earth is mainly covered in water and forests.
  - the lakes, oceans, and forests are protected from pollution.
  - they can be restored by the water cycle and replanting of trees.
  - there is plenty of rain to help the forests grow for wood products.





13. Two friends are collecting rocks. They found a speckled one with different colors and an all white, shiny one. Which one was probably a mineral? Explain your answer.

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14. Write a list of five different objects you used today. Place and X in the box that classifies each item as a natural resource or manufactured resource.

Objects I used Today	Natural Resource	Manufactured Material
1.		
2.		
3.		
4.		
5.		

15. Paper is made of the wood pulp of trees. Write why it is important to recycle paper.

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**Earth and Me**  
**Answer Key (cont.)**



16. Explain how landslides change the surface of the Earth. Tell if it is a rapid change or a slow change.

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17. Explain how glaciers change the surface of the Earth. Tell if it is a rapid change or a slow change.

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Rubric for Earth and Me Summative Assessment

(Total Possible Points - 29)

Question #1: The surface of the Earth is constantly changing. Choose the BEST answer below that describes causes for slow, gradual changes of the surface of the Earth. (E.SE.03.22)

Answer: c (1 point)

Question #2: Choose the evidence that shows that the surface of the Earth is always changing. (E.SE.03.22)

Answer: a (1 point)

Question #3: Choose the evidence that shows that a rock specimen is made up of minerals. (E.SE.03.14)

Answer: b (1 point)

Question #4: Choose the list that identifies natural resources. (E.ES.03.41)

Answer: a (1 point)

Question #5: Choose the methods humans can use to help the environment. (E.ES.03.43)

Answer: c (1 point)

Question #6: Mr. Nelson's class was investigating different earth materials...Choose the BEST conclusion based on the class data chart. (E.SE.03.13, S.IA.03.11)

Answer: d (1 point)

Question #7: Based on their observations, the class concluded that the soil was a mixture. Choose the answer that gives evidence to support their conclusion. (E.SE.03.13, S.RS.03.15)

Answer: b (1 point)

Question #8: Choose the list of materials that can be recycled. (E.ES.03.44)

Answer: b (1 point)

Question #9: Carlos was worried about the amount of kitchen vegetable and fruit scraps his family threw away every day. ..Choose the answer that explains how composting kitchen scraps affects the environment. (E.ES.03.52)

Answer: a (1 point)



**Earth and Me  
Answer Key (cont.)**

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Question #10: Water and forests are classified as renewable resources because: (E.ES.03.42)

Answer: c (1 point)

Question #11: Non-renewable resources are: (E.ES.03.42)

Answer: b (1 point)

Question #12: Metal, sand, gravel, clay, soil, and rocks are earth materials used to build things. Choose one earth material and tell what it is used to build. Tell if the earth material is a renewable or non-renewable resource. (E.ES.03.51, E.SE.03.31)

Elements

- a. Response includes appropriate use of the earth material.
- b. Response includes that the earth material is non-renewable.

Scoring (2 points)

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

Summative Assessment: Student Journal

Question #13 - Activity #2, Journal Entry Question #2: Two friends are collecting rocks. They found a speckled one with different colors and an all white, shine one. Which rock was probably a mineral? Explain your answer. (E.SE.03.14)

Elements

- a. Response includes a reference to the one color as evidence that rock is a mineral.
- b. Response includes a reference to the different colors as evidence that the rock is made up of several minerals.

Scoring (2 points)

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



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Question #14 - Activity #6, Journal Entry Question #1: Write a list of five different objects you used today. Place an X in the box that classifies each item as a natural resource or manufactured material. (E.SE.03.41)

Elements

- a. One object is listed and correctly classified.
- b. Second object is listed and correctly classified.
- c. Third object is listed and correctly classified.
- d. Fourth object is listed and correctly classified.
- e. Fifth object is listed and correctly classified.

Scoring (5 points)

- 5 - Response includes all five elements
- 4 - Response includes four elements
- 3 - Response includes three elements
- 2 - Response includes two elements
- 1 - Response includes one element
- 0 - No response, no elements, can't read the answer

Question #15 - Activity #6, Journal Entry Question #3: Paper is made from the wood pulp of trees. Write why it is important to recycle paper. (E.ES.03.52)

Elements

- a. It reduces the destruction of forests.
- b. It reduces the amount of waste in landfills.

Scoring (2 point)

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



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Question #16 - Activity #11, Journal Entry Question #1: Explain how landslides change the surface of the Earth. Tell if it is a rapid change or a slow change. (E.SE.03.22)

Elements

- a. Landslides move when large masses of earth material move down a slope.
- b. Landslides are a rapid change.

Scoring (2 points)

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

Question #17 - Activity #11, Journal Entry Question #2: Explain how glaciers change the surface of the Earth. Tell if it is a rapid change or a slow change. (E.SE.03.22)

Elements

- a. Glaciers move slowly, gouging out rocks and surface features.
- b. Glaciers carry earth materials from one place to another.
- c. Glaciers are a slow change.

Scoring (3 points)

- 3 - Response includes all three elements
- 2 - Response includes two elements
- 1 - Response includes one element
- 0 - No response, no elements, can't read the answer