

Learning Activity

Task Focus: Narrative Descriptive

Task Title/Topic	Fossils	
Guiding Question	What can we learn about the past from fossils?	
Task Type	Narrative	
Grade	4	
Curriculum Connections	<p>2.B. EARTH HISTORY</p> <p>2. Recognize and explain that fossils provide evidence about the plants and animals that lived long ago and about the nature of the environment at that time.</p> <p style="padding-left: 40px;">a. Recognize and explain that the remains or imprints of plants or animals can become fossils.</p> <p style="padding-left: 40px;">b. Describe the physical structures of an animal or plant based on its fossil remains.</p> <p style="padding-left: 40px;">c. Identify what an animal or plant fossil is able to tell about the environment in which it lived.</p> <p style="padding-left: 80px;">* Water</p> <p style="padding-left: 80px;">* Land</p>	
Text Type and Number	<p>1 Short Informational Text: What are fossils? and What can we learn from fossils? Textbook Resources: MacMillan McGraw-Hill Grade 4 Maryland Science: A Closer Look 2014 edition (MMH) pp. 210-211, 214-215</p>	
Number and type of Prose Constructed Response Items	1 PCR	<ul style="list-style-type: none"> Measures all writing claims
Number and Type of EBSR and/or	<ul style="list-style-type: none"> 5 total items = 10 points 	<ul style="list-style-type: none"> Items are designed to

TESR Reading Items	<ul style="list-style-type: none"> Any combination of RI standards 1, 2, 3, 4, 5, 7, 9 	measure the reading information sub-claim
Total # of Items for the Task Model	6	
Suggested Order of Student Actions:	<ul style="list-style-type: none"> Engage students by creating molds and casts of fossils (follow "Making Molds and Casts" in curriculum) *be sure to include animal footprints as a mold option Read and discuss What are fossils? to explain mold and cast activity Explore what fossils can tell about the past by completing the "Making Predictions Based on Fossils" activity within the curriculum Explain through reading and discussing, What can we learn from fossils? as a class. Students should then answer EBSR's in small groups After small group work with EBSR questions, have students add, modify, or justify their predictions made in the explore activity Finally, have the students individually respond to the PCR 	

What are fossils? and What can we learn from fossils?

Textbook Resources: MacMillan McGraw-Hill Grade 4 Maryland Science: A Closer Look 2014 edition (MMH) pp. 210-211, 214-215

Directions: Reread pages 210-211 and pages 214-215 of “Maryland Science a Closer Look” to answer the following questions.

1. Part A

What is the meaning of the word **fossil** as it is used in the text?

- A.** remains of past organisms
- B.** casts, molds, imprints, and wood
- C.** remains of animal bones in sediment
- D.** insects stuck in hardened amber

Part B

Which detail from the text best supports the answer to Part A?

- A.** “Shells often leave behind fossils known as molds.”
- B.** “A fossil is evidence of an organism that lived long ago.”
- C.** “Insects and spiders can become trapped in sticky tree sap.”
- D.** “When a plant or animal dies, the soft parts quickly decay.”

2. Part A

Which of the following statements best describes how the diagram on page 214 supports the text?

- A.** The diagram illustrates how sediment covers fish remains
- B.** The diagram illustrates how a fish dies in a lake
- C.** The diagram illustrates how a fish skeleton moves
- D.** The diagram illustrates how a fish becomes a fossil

Part B

Which detail from pages 210-211 best support the answer to Part A?

- A.** "Some fish fossils are even found high in the mountains!"
- B.** "When a plant or animal dies, the soft parts quickly decay."
- C.** "As the sediments turn to rock, the buried remains can become fossils."
- D.** "Water can seep into the spaces in the rock where an organism is buried."

3. Part A

How would a scientist classify a dinosaur footprint?

- A.** cast
- B.** mold
- C.** stony fossil
- D.** imprint

Part B

Which detail from the text best support the answer to Part A?

- A.** "A cast is a fossil that is formed or shaped in a mold."
- B.** "A mold is a hollow form with a certain shape."
- C.** "Wood and bones can become petrified, or turn to stone."
- D.** "An imprint is a mark made by pressing."

4. Part A

What have scientists concluded about Maryland's climate based on the discovery of fern fossils?

- A.** Maryland was once covered in water
- B.** Maryland once had a tropical climate
- C.** Maryland was once covered in ice
- D.** Maryland once had a very cold climate

Part B

Which detail from the text best support the answer to Part A?

- A.** "Large animals called mammoths have been found in the tundra ice."
- B.** "Most of the plants lived millions of years ago during the Age of the Ferns"
- C.** "These fossils show where water once covered the land."
- D.** "They are similar to the ferns that grow in warm, moist places."

5. Part A

What is the main idea of the text, "What can we learn from fossils" on pages 214-215?

- A.** Fossils can tell us how much the dinosaurs weighed
- B.** Fossils can tell us how Maryland used to look
- C.** Fossils can tell us about past organisms and environments
- D.** Fossils can tell us that fish used to live on land

Part B

Which **two** details from the text best supports the answer to Part A?

- E.** "Fossils tell us about the plants and animals that lived in the past."
- F.** "You could easily guess from the width and depth of its footprints."
- G.** "The crinoids lived in the ocean, but their fossil remains were on dry land."
- H.** "What if you find many footprints of different sizes in one area?"
- I.** "People mine coal in Allegany County and other parts of Maryland."

PCR

The Esposito family went hiking on a tall mountain. Mrs. Esposito picked up a shell fossil on the top of a mountain. The fossil was once a shelled organism that lived in the ocean.

Describe your ideas about how a fossil could end up on top of a tall mountain. Be sure to include what you know about how fossils are formed and what we can learn from fossils.

Teacher Copy

Directions: Reread pages 210-211 and pages 214-215 of “Maryland Science a Closer Look” to answer the following questions.

1. Part A (RI.4.4)

What is the meaning of the word **fossil** as it is used in the text?

- A. remains of past organisms**
- B. casts, molds, imprints, and wood**
- C. remains of animal bones in sediment**
- D. insects stuck in hardened amber**

Part B

Which detail from the text best supports the answer to Part A?

- A. “Shells often leave behind fossils known as molds.”**
- B. “A fossil is evidence of an organism that lived long ago.”**
- C. “Insects and spiders can become trapped in sticky tree sap.”**
- D. “When a plant or animal dies, the soft parts quickly decay.”**

2. Part A (RI.4.7)

Which of the following statements best describes how the diagram on page 214 supports the text?

- A. The diagram illustrates how sediment covers fish remains
- B. The diagram illustrates how a fish dies in a lake
- C. The diagram illustrates how a fish skeleton moves
- D. The diagram illustrates how a fish becomes a fossil**

Part B

Which detail from pages 210-211 best support the answer to Part A?

- A. "Some fish fossils are even found high in the mountains!"
- B. "When a plant or animal dies, the soft parts quickly decay."
- C. "As the sediments turn to rock, the buried remains can become fossils."**
- D. "Water can seep into the spaces in the rock where an organism is buried."

3. Part A (RI. 4.1)

How would a scientist classify a dinosaur footprint?

- A. cast
- B. mold
- C. stony fossil
- D. imprint**

Part B

Which detail from the text best support the answer to Part A?

- E. "A cast is a fossil that is formed or shaped in a mold."
- F. "A mold is a hollow form with a certain shape."
- G. "Wood and bones can become petrified, or turn to stone."
- H. "An imprint is a mark made by pressing."**

4. Part A (RI 4.1)

What have scientists concluded about Maryland's climate based on the discovery of fern fossils?

- A. Maryland was once covered in water
- B. Maryland once had a tropical climate**
- C. Maryland was once covered in ice
- D. Maryland once had a very cold climate

Part B

Which detail from the text best support the answer to Part A?

- A. "Large animals called mammoths have been found in the tundra ice."
- B. "Most of the plants lived millions of years ago during the Age of the Ferns"
- C. "These fossils show where water once covered the land."
- D. **"They are similar to the ferns that grow in warm, moist places."**

5. Part A (RI.4.2)

What is the main idea of the text, "What can we learn from fossils" on pages 214-215?

- A. Fossils can tell us how much the dinosaurs weighed
- B. Fossils can tell us how Maryland used to look
- C. **Fossils can tell us about past organisms and environments**
- D. Fossils can tell us that fish used to live on land

Part B

Which **two** details from the text best supports the answer to Part A?

- A. "Fossils tell us about the plants and animals that lived in the past."**
- B. "You could easily guess from the width and depth of its footprints."**
- C. "The crinoids lived in the ocean, but their fossil remains were on dry land."**
- D. "What if you find many footprints of different sizes in one area?"**
- E. "People mine coal in Allegany County and other parts of Maryland."**

PCR

The Esposito family went hiking on a tall mountain. Mrs. Esposito picked up a shell fossil on the top of a mountain. The fossil was once a shelled organism that lived in the ocean.

Describe your ideas about how a fossil could end up on top of a tall mountain. Be sure to include what you know about how fossils are formed and what we can learn from fossils.

Modified from: Keeley, P. (2005). *Uncovering student ideas in science*. Arlington, Va.: NSTA Press.

This will be graded according to the scoring rubric for constructed response items created by PARCC.