

## Earth's Environment: Past, Present, and Future



Photo by Justyn Warner on Unsplash

Presented by

**Dr. Russell Graham, Ph.D.**  
**Director of Earth and Mineral Sciences Museum**  
**and**  
**Gabriel Knowles (CSATS)**

**Saturday, November 3, 2018**  
**9:00 a.m. – 3:30 p.m.**

**10 Deike Building**  
**University Park, PA 16802**

What can be learned from Earth's history to help us see into the future? Learn how paleontologists use clues from the fossil record to explain what happened in the past to make predictions about Earth's future. In this workshop teachers will use data from the fossil record to learn about past ecosystems and how living organisms responded to changes in their environment. Participants will take information from text features, such as charts, diagrams, and maps to solve questions about the prehistoric past and make informed predictions about the present and future of life on Earth.

**Target audience:** elementary teachers in grades 3 - 5

**This workshop is FREE to all educators with ACT 48 credit available.**

**All i-STEAM Workshops are aligned to PA State Standards, Next Generation Science Standards and Common Core. A continental breakfast and lunch are provided by the Center for Science and the Schools (CSATS). Maximum enrollment is 24; please register online now to reserve a spot.**

**Sponsored by**  
**The Penn State College of Education**  
**Center for Science and the Schools**  
**182 Chambers Building, University Park, PA 16802**

**To register visit: <http://csats.psu.edu>**  
**For more information, email Gabe Knowles at [glk54@psu.edu](mailto:glk54@psu.edu) or call 814 865-1713.**

Grade 3	Grade 4	Grade 5
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<b>Pennsylvania Academic Standards for Science and Technology and Engineering</b>		
<p>3.1.3.C3 CONSTANCY AND CHANGE Recognize that fossils provide us with information about living things that inhabited the Earth long ago.</p>	<p>3.1.4.C3 CONSTANCY AND CHANGE Compare fossils to one another and to currently living organisms according to their anatomical similarities and differences.</p>	
<p>3.1.3.C1 Recognize that many plants and animals can survive harsh environments because of seasonal behaviors (e.g. hibernation, migration, trees shedding leaves).</p>	<p>3.1.4.C1 Identify different characteristics of plants and animals that help some populations survive and reproduce in greater numbers. Describe how environmental changes can cause extinction in plants and animals.</p>	<p>3.1.5.C1 Describe how organisms meet some of their needs in an environment by using behaviors (patterns of activities) in response to information (stimuli) received from the environment.</p>
	<p>3.3.4.A3 Recognize that fossils provide evidence about the plants and animals that lived long ago and the nature of the environment at that time.</p>	

<b>Pennsylvania Academic Standards for Environment and Ecology</b>		
<p>4.5.3.D Identify organisms that are dependent on one another in a given ecosystem.  • Define habitat and explain how a change in habitat affects an organism.</p>	<p>4.5.4.D Explain how specific adaptations can help organisms survive in their environment.</p>	<p>4.5.5.D Explain the differences between threatened, endangered, and extinct organisms.</p>
<p>4.1.3.E Identify changes in the environment over time.</p>	<p>4.1.4.E Explain that ecosystems change over time due to natural and/ or human influences.</p>	

<b>English Language Arts Standards</b>		
<p>CC.1.2.3.G Use information gained from text features to demonstrate understanding of a text.</p>	<p>CC.1.2.4.G Interpret various presentations of information within a text or digital source and explain how the information contributes to an understanding of text in which it appears.</p>	<p>CC.1.2.5.G Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.</p>
<p>CC.1.4.3.W Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.</p>	<p>CC.1.4.4.W Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.</p>	<p>CC.1.4.5.W Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.</p>
<p>CC.1.5.3.A Engage effectively in a range of collaborative discussions on grade-level topics and texts, building on others' ideas and expressing their own clearly.</p>	<p>CC.1.5.4.A Engage effectively in a range of collaborative discussions on grade-level topics and texts, building on others' ideas and expressing their own clearly.</p>	<p>CC.1.5.5.A Engage effectively in a range of collaborative discussions on grade-level topics and texts, building on others' ideas and expressing their own clearly.</p>
<p>CC.1.5.3.C Ask and answer questions about information from a speaker, offering appropriate detail.</p>	<p>CC.1.5.4.C Identify the reasons and evidence a speaker provides to support particular points.</p>	<p>CC.1.5.5.C Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.</p>