

Introducing Meadowcroft Rockshelter GigaPan Lesson

An exploration of Meadowcroft Rockshelter

Summary: This lesson provides an overview of Meadowcroft Rockshelter using GigaPan Images with multimedia content overlays. The content summarizes the main points for the *First Peoples: Archaeology at Meadowcroft Rockshelter* curriculum using a thematic approach. Through the exploration of the images outlined below, learners will discover the site's **geologic** origins, how it was discovered, the procedures employed by **archaeologists** to excavate the site, and the significance of **stratigraphy**. Lastly, learners will explore the most significant **cultural evidence** at the site, evidence of the Miller complex, a Pre-Clovis Paleo-Indian cultural group. The discovery of Pre-Clovis materials resulted in 40 years of controversy about when and how the peopling of the Americas occurred.

Students will:

- Identify Meadowcroft Rockshelter
- Describe the **geographic** location of the site
- Explore how and when the site formed
- Learn how the site was discovered
- Explore the **archaeological excavations**
- Discover the significance of **stratigraphy**
- Investigate Meadowcroft's Miller Complex and the Pre-Clovis evidence
- Explore the significance of a continuous cultural record

Timing: 20-40 minutes

Materials:

Writing Instruments
Paper
Internet Access
Map of Pennsylvania

Optional Reference Materials:

First Peoples Teacher's Guides:
Archaeology
Geography and Ecology
Geology
Cultural Findings

Michael Collins, [Meadowcroft: Shelter in a Storm](#)" article

J.M. Adovasio and Jake Page, "[Searching for the First Americans: a 500 Year Quest](#)"

David Scofield, "[Legacy of the Land](#)"

David Scofield, "[40 years of Archaeology at the Meadowcroft Rockshelter](#)"

Terms

Archaeology
Archeological site
Prehistoric
Cultural Group
Field School
Multi-disciplinary
Geoarchaeological
Watershed
Stratigraphy
Reentrant
sandstone

Concepts

Law/ Principle of Superposition
Geologic Processes (attrition,
sheetwash, downcutting)

Identification Significance

Albert Miller
Clovis
Cross Creek
Dr. James Adovasio
Meadowcroft Project
Meadowcroft Rockshelter
Miller Complex
Monongahela River
Ohio River
Pleistocene
Pre-Clovis

Background Information

Meadowcroft Rockshelter is a **prehistoric** archaeological site located near Avella, PA. The site is located along **Cross Creek**, a **tributary** of the Ohio River. The site is significant because it contains evidence of every major prehistoric **cultural group** known to have occupied Pennsylvania and the northeastern United States.

Albert Miller, a gentleman farmer, owned the land where Meadowcroft Rockshelter sits. In November 1955, he discovered a groundhog hole under the Rockshelter's overhang. The dirt surrounding the hole contained bones, charcoal, and flint tools. In 1973, Miller met **Dr. James Adovasio**, an **archaeologist** with the University of Pittsburgh.

The **Meadowcroft Project**, an archaeological investigation of the Rockshelter and Cross Creek **watershed**, was initiated as a **field school** for University of Pittsburgh students beginning in 1973 and continuing through 1979. The project was designed as **multi-disciplinary**, using a **geoarchaeological** approach to capture as much information as possible about the **geography, geology, ecology, and archaeology** of the area. Specialists with expertise in more than thirty academic areas contributed to the project.

The **excavation** is significant for two reasons:

- 1) The **stratigraphy** and **radiocarbon dates** all support a continuous cultural presence that includes every known prehistoric cultural group in the northeastern United States.
- 2) The **multi-disciplinary archaeological excavation** is known for its thorough application of state-of-the arts processes and techniques.

The most significant **cultural evidence** is in Stratum IIa lower and representing a Pre-Clovis occupation of the Rockshelter. These materials date approximately 4,000 years earlier than other prehistoric North American **culture** evidence. In addition to cultural data, the **excavation** resulted in the recovery of thousands of **geofacts** and **ecofacts** that informed interpretations of the paleogeography and paleoecology of the Cross Creek **watershed**.

Procedure:

This procedure is for teacher who will guide their students through the GigaPan exploration. However, the activity is just as successful if you provide the GigaPan Map and let the students visit the highlighted stops. See the Alternate Delivery Options below.

Teachers should begin the lesson by offering an introduction; one possible activity suggestion is below. If you have not already done so, provide an introduction to Meadowcroft Rockshelter, identifying the site, explaining its significance, and why you are studying it. You may also wish to provide a brief introduction to what a GigaPan image is and how you can explore it (hint: Use the *First Peoples* GigaPan Image guide).

Lesson Introduction Activity: Project the *Exterior Image* for one minute. Ask students to write down a description of what they think they see. Review student observations. Use this exercise to launch the GigaPan exploration:

Introductory Overview GigaPan Map						
GigaPan Image	Tab	Point #	Title	Content Description	Multimedia/ Visual	Transitions
Exterior	Overview	1	Modern Enclosure	This structure is home to the archaeological site known of the Meadowcroft Rockshelter . It was built in 2007 and 2008 to protect the open excavation below.	56s video on the history of the Meadowcroft Rockshelter as an archaeological site	The creek below the Rockshelter is essential to the story: in addition to carving the Rockshelter, the creek provided a pathway for people travelling by foot between the Ohio and Monongahela River valleys.
Exterior	Overview	2	Cross Creek	Cross Creek provided people with easy access between the Ohio and Monongahela River valleys.	51s video on the geography of the MCRS.	Let's investigate how this landscape formed ...
Exterior	Overview	3	Morgantown-Connellsville Sandstone	The rocks that make up the Rockshelter have different properties that aided in the creation of the site.	1m 17s video on the Geologic history of the Rockshelter.	The downcutting action of the stream eventually shaped the Rockshelter. ..
Exterior	Overview	4	The Rockshelter	The overhang was created when a heavy flow of water eroded a reentrant in the lower sequence of sandstone about 55,000 years ago.	38 s video about staying at the Rockshelter	The mature Rockshelter stood high above the creek, an obvious location for shelter for any passersby...
Front	Overview	1	Groundhog Hole	Albert Miller , local farmer and founder of Meadowcroft Village, found the first evidence of a prehistoric occupation of the Rockshelter when he investigated a burrow along the cliff face. This	A scan of the journal entry written by Albert Miller upon making his discovery.	Albert Miller and Dr. Adovasio recognized that Meadowcroft contained evidence of prehistoric peoples. The evidence was hidden in the stratigraphy of the site...

				happened in 1955. He preserved the site for 18 years until Dr. James Adovasio began a proper excavation .		
Front	Overview	2	Western Profile	Attrition and Sheetwash deposited layer upon layer of sediments on the floor of the Rockshelter, burying evidence as it built up the site's stratigraphy .	22s video on the sedimentation of the Rockshelter.	Meadowcroft's stratigraphy was complex and required careful excavation methods – it offered an excellent opportunity to train student archaeologists ...
Front	Overview	3	Tool Box	Students were at the site to learn how to properly excavate a site, document the findings, and draw conclusions from the evidence recovered.	1m12s video on the use of the site as an archaeological field school .	Archaeologists use stratigraphy to create a chronology , or sequence . The Law of Superposition is one means of determining the relative age of evidence based on location. ...
Lower	Overview	1	Deep Hole	The Law of Superposition states that deeper strata are older than those above. This means that as archaeologists dig down, they are moving back in time. Meadowcroft's sediments offer glimpses into life over a very long time.	48s video on the lower deposits of the Rockshelter.	To their surprise, the Rockshelter's stratigraphy was much deeper than originally anticipated.... Archaeologists originally thought the first people in North America were the Clovis people
Lower	Overview	2	Clovis Horizon	Since the 1930s peopling theory has been dominated by the Clovis Theory ; the thought that people migrated into North America following	49s video on the Clovis Theory.	However, Meadowcroft's stratigraphy contained cultural evidence that was deeper than the Clovis horizon...

				mammoth herds south through Western Canada as glaciers receded.		
Lower	Overview	3	Miller Situ.	The Miller Complex is the culture of Meadowcroft's pre-Clovis occupation. They left behind evidence of a lifestyle quite different than megafaunal hunting.	1m 43s video on the Paleoindian component of the Meadowcroft Rockshelter.	The Miller Complex was, at the time, the earliest archaeological evidence of prehistoric people in the New World. As a result, archaeologists had to revisit theories about when and how people arrived here ...
Lower	Overview	4	Pleistocene Hearth	Human occupation of the Rockshelter stretches back to the Pleistocene , thousands of years before firmly dated Clovis points.	1m 4s video on early peopling theories.	Conclusion: Meadowcroft Rockshelter contains a continuous record of every known cultural group in North America. The site is evidence that people have been here for a very long time.

Alternate Delivery Options:

- Guide the students through the introductory activity. The goal of this is to make the students comfortable with making observations about an image. After the exercise, provide the GigaPan Map for this activity and let students explore the images.
- Use the GigaPan Map above to create a worksheet or scavenger hunt for your students. Give them time to explore the images on their own, completing their worksheets as they go.

Post-Activity Enrichment

- Ask students to draw pictures of what they think life was like for the Pre-Clovis cultural groups at Meadowcroft. What evidence from the activity above should they include in their drawings?
- Ask students to identify other prehistoric American archaeological sites. Locate and label these sites on a blank North and South American map. Include the dates that **archaeologists** report for those sites. How do the students think people got to these sites? Draw arrows to indicate their migrations.
- Ask students to write a journal entry or reflection piece about what they learned. What other questions would they like to ask about Meadowcroft Rockshelter? Share some of the questions and discuss where or how students might find these answers.
- Meadowcroft Rockshelter is one of the most significant archaeological sites in North America. Many scholarly and popular works have been published about the site and the discoveries there. Have students conduct an internet source to see what types of information are available about Meadowcroft. Which of these sources would be useful for conducting further research? Why? Which would be useful for a friend or parent who wants to learn about what you learned today why? Which sources should you not use for scholarly work, why? Alternately, teachers might ask students to create an annotated bibliography of Meadowcroft sources.

- Ask students to choose one of the articles in the Resources section. Students should read the article and describe the main argument and identify critical evidence that supports the argument. They should identify the author's conclusion and reflect on their personal reaction to the article.