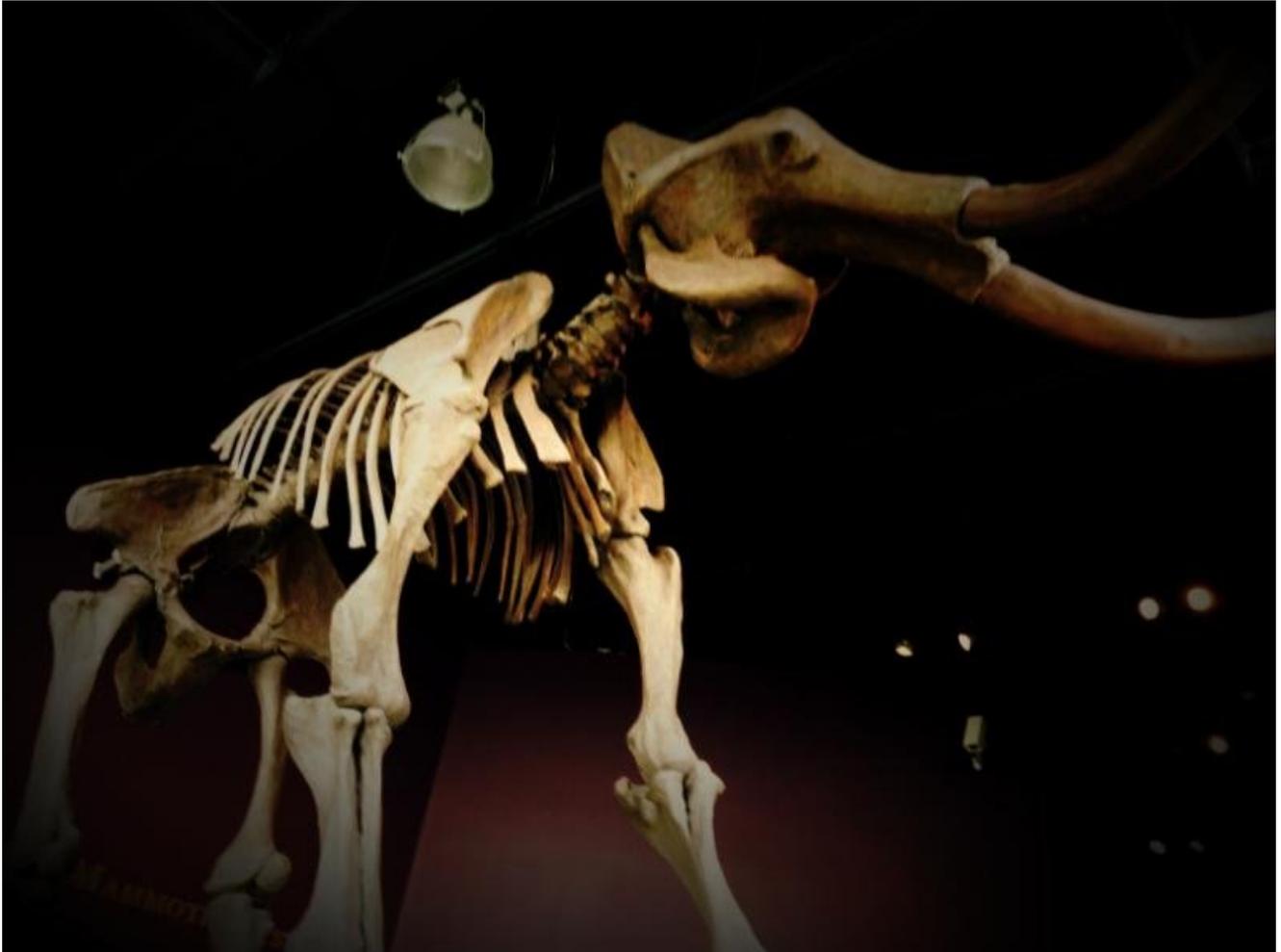


CSI: Mammoth Pre and Post Visit Materials



Kenosha Public Museum
5500 1st Avenue
Kenosha, WI

Kenosha
Public
Museum



Kenosha Public Museum
CSI: Mammoth

CSI: Mammoth is an hour long museum experience designed for grades 3-6. Through inquiry activities and hands-on experiments students will become archaeologists and try to solve the Schaefer Mammoth Mystery, one of the oldest site of human and animal interaction east of the Mississippi River.

Program Goals:

- Students will work collaboratively in small groups to build scientific understanding and make claims about the first people of this area and their relationship to the environment.
- Students will explore the field of archaeology utilizing hands-on investigations and will analysis evidence to support their claims.

Learning Standards:

Wisconsin For Grade 4-

- B.4.1- Identify and examine various sources of information that are used for constructing an understanding of the past, such as artifacts, documents, letters, diaries, maps, textbooks, photos, paintings, architecture, oral presentations, graph or charts.

Illinois For Grade 4-

- SS.IS.4.3-5- Gather relevant information and distinguish among fact and opinion to determine credibility of multiple sources.
- SS.IS.5.3-5-Develop claims using evidence from multiple sources to answer essential questions.
- SS.IS.6.3-5-Construct and critique arguments and explanations using reasoning, examples, and details from multiple sources.

Common Core:

- CCSS.ELA-Literacy.CCRA.SL.1
- CCSS.ELA-Literacy.CCRA.SL.3
- CCSS.ELA-Literacy.CCRA.SL.4

This packet of information will help prep your students for this program and allow for a debrief back in the classroom. Please go over information with your students, prior to the visit.

Key Vocabulary:

Archaeology: The study of cultures or peoples of the past.

Artifact: An object that has been made or changed by humans for their use.

DNA: short for deoxyribonucleic acid. DNA is the blueprint for how living things know how to develop and function.

Ecofact: Plant or animal remains found at an archaeological site.

Excavation: The removal of earth from an archaeological site in a systematic way to recover archaeological information.

Lithics: Artifacts and tools made of stone found by archaeologists.

Mammoth: A large, extinct species of elephant that was adapted to living during the Ice Age.

Resources:

Mammoths at the Museum, Kenosha Public Museum: <http://www.kenosha.org/wp-museum/exhibits-2/mammoths-kenosha-public-museum/>

Schaefer mammoth: <http://www.woollymammoth.org/Schaefer.htm>

Archaeology for Kids, National Park Service:
<https://www.nps.gov/archeology/Public/kids/index.htm>

Pre Visit Activity

Archaeology in a Box

Objective: Students learn about archaeologists and will participate in a hands-on model of what it is like to be one.

Materials:

- Plastic shoebox (one per group)
- sand or dirt
- small trinkets (coins, marbles, beads, rocks, broken pottery, plastic caps)
- trowels
- brushes
- paper
- pencils

Prepwork:

Before the lesson, fill the shoeboxes with a layer of sand or dirt. Put a few items down there, undecorated pottery, rocks and beads would work well. Place another layer of sand or dirt down. Place the coins, beads, and marbles on this layer. Add another layer and put modern trash, like plastic water bottle lid, candy wrappers, foil. Cover with one more layer of dirt.

What you need to know:

Archaeologists are people who study the remains of past people and cultures. Usually archaeologists find items left behind during an excavation of a site. Artifacts and ecofacts may have been in the ground for hundreds if not thousands of years and are often fragile. Archaeologists have to be careful when excavating and use special tools and techniques so not to break or miss any artifacts. Instead of a traditional shovel, most archaeologists will use a trowel so they can slowly move the dirt, without worrying about hitting anything. Once an archaeologists find an artifact or ecofact they use a brush to clean it and document its location before removing.

Location is very important when dealing with artifacts because it gives a rough date and a context. Usually older artifacts and ecofacts are buried farthest down, with newer items closer to the top. Using artifacts and ecofacts, archaeologists can build hypotheses on how the people lived, including what type of living structures they built, what they ate and how they dressed.

The Paleo-Indians were in this area around 12,000 years ago, much earlier than previously thought. They did not leave much behind to allow archaeologists to understand their lifestyle and interaction with the land. During the excavation at the Schaefer farm, archaeologists found stone tools with the mammoth remains. Those stone tools were association with the Paleo-Indians due to the location.

After labwork, the stone tools were dated by archaeologists and determined to be from the same time period.

Procedure:

1.) Work with your students to come up with what type of items an archaeologists might find if they were digging for past cultures. After brainstorming, explain that archaeologists find all sort of items that help determine how past people and cultures lived. They could find bones of their food, pot sherds, glass pieces, metal nails, and even structures.

2.) List several items on the board that an archaeologist might find- unmarked pottery sherds, glass beads, animal bones, Civil War button, a metal nail, colored pottery, bottle cap, plastic zip-tie, and a rubber band. Work with your students to determine what of these are the oldest and would could be the newest. Once the list is complete, explain that archaeologists general find “older” artifacts and ecofacts below “newer” items. Archaeologists can use where something is found to roughly date the items.

3.) Divide your students into groups and have them sit around the shoebox. Remind students of how an archaeologist digs for artifacts and ecofacts. Explain to students that they need to document if they find something. They can write or draw descriptions of the objects and where they were found.

4.) Have students search for artifacts. Make sure to reinforce how archaeologists would search using their tools.

5.) Once all groups have finished, get them back together and ask what items were found and what layer they were found. Ask students to come up with hypotheses on where the artifacts came from, why they were important and who might have used them.

What’s going on here?

Archaeologists never know what they will find when going into an excavation. They might know general ages of sites, but the distribution of the artifacts and ecofacts allow for them to relative date the objects. This is the law of superposition, the younger or newer artifacts will be located in the top layers, with older artifacts being located lower.

Archaeologists are scientists that study past people and cultures and how they interact with the land. In the Schaefer site, archaeologists were able to determine the Paleo-Indians interacted with the large mammals due to stone tools found at the site.

Extensions:

Set up an archaeological grid on your shoebox. Students can map out where artifacts were found and use this to build more hypotheses.

Have students write a journal entry as an archaeologists who just discovered an ancient artifact. Have them explain what it is, who used it and why was it important.

Post Visit Lesson

Mammoth Population Math

Objective: Students will use dice and charts to illustrate the decline in mammoth populations which ultimately led to extinction.

Materials:

- 20 dice (per group) plus a few extra for teacher
- Copy of keeping track of your herd worksheet
- Pencils

What you need to know:

Scientists believe that mammoths were common in North America until their extinction around 11,000 years ago. Several factors played a role in their extinction, including human presence and hunting. Adding to the stress of mammoths that were living in a warming climate, humans developed tools and weapons that allowed them to hunt more accurately.

Students will simulate the fall of the Mammoth decline and extinction. Each dice roll will represent a mammoth, and the number they roll will determine what happened to the mammoth herd. Students will start with 20 mammoths (or dice); if one of the dice shows a 1 for calf born, you will increase the number of dice. If the dice rolls a 2 or 3, where a mammoth dies, that dice will be taken away. Students will be recording 20 turns of rolling dice, to represent a mammoth pack over 20 years. Students will play 1 round before humans were in the area, and 1 area after humans are in the area.

Procedure:

1.) Generate a list of what might have happened to the mammoths with your students. How did they become extinct? Did any survive? After brainstorming, explain to students that they will pretend to track a herd of 20 mammoths and what happens to them over 20 years.

2.) Divide class into groups, and hand out dice per group. Pass out and explain how to keep track of their herd on their handout. On the board write out the rules for Round 1. Round 1 is what happens to a herd BEFORE humans are in the area. Groups will start with a herd of 20 mammoths (or dice), going into Round 1.

If you roll a...

1 = a calf is born

2 = the mammoth is killed by a predator

3 = the mammoth dies of starvation

4 = the mammoth keeps living another year

5 = the mammoth keeps living another year

6 = the mammoth keeps living another year

3.) Students should roll the 20 dice and record what happens to the herd on the 1st year. If they roll on that a calf is born, they need to get an extra dice. If they roll that a mammoth has died, they need to take a dice away. Starting in the second roll, they might have a different number of dice than the first roll, this is their new herd number. Have students continue to roll the number of dice for the number of mammoths left in their herd and record their results.

4.) Once everyone has rolled and recorded, gather all the students back together. Ask how many mammoths remained. Explain to them how many mammoths that started with and how many are left. Record those numbers on the board.

5.) Have students prepare for Round 2. Students will roll all 20 turns again and record what happens to the herd in the round 2 column of their worksheet. Put on the board the rules for Round 2. Round 2 is after humans came into the area.

If you roll a...

1 = a calf is born

2 = the mammoth is killed by a predator

3 = the mammoth dies of starvation

4 = the mammoth is killed by a human hunter

5 = the mammoth keeps living another year

6 = the mammoth keeps living another year

6.) This round starts with 20 mammoths. Students should roll the dice and record what happens to the herd each year on their handout.

7.) Once everyone has rolled and recorded, gather all the students back together. Ask how many mammoths remained. Explain to them how many mammoths that started with and how many are left. Record those numbers on the board. Ask for students to compare the two numbers of remaining mammoths from round 1 or round 2, is there a difference? What happened between rounds that could effect the number? Have students report out theories.

What's going on here?:

Although scientists cannot determine the exact cause for decline and ultimately extinction in mammoth populations, they can agree that humans arriving in the area seem to put pressure on the mammoth population. The Schaefer mammoth was butchered after death, but it is unsure exactly how it died. One theory is that the Paleo-Indians hurt the mammoth and ultimately it died from its injuries. Because sites are few from this time, scientists are still looking for answers.

Extensions:

Have the group make a graph from their data. The graphs of both rounds would be different enough to help visualize what happened to the herd.

Have students write out their ideas of what happened to the mammoth populations.

Keeping Track of your Herd

	Round 1		Round 2
Year	Number of Mammoth	Year	Number of Mammoths
1		1	
2		2	
3		3	
4		4	
5		5	
6		6	
7		7	
8		8	
9		9	
10		10	
11		11	
12		12	
13		13	
14		14	
15		15	
16		16	
17		17	
18		18	
19		19	
20		20	