Lesson Title: Kincaid Creatures
Subject: Texas history, science, math
By: Carol Schlenk

Grade level: 7th (Can be modified for 4th grade)

Rationale or Purpose: To illustrate how archeologists use stratigraphy to help determine environmental changes in a specific area since the Pleistocene Era, and to point out that these changes have affected the animals living in that area.

Materials:
- Blank overhead transparency and markers (for brainstorming)
- "Kincaid Shelter Stratigraphy" transparency (hardcopy included in this lesson)
- "Kincaid Shelter Stratigraphy" student handout (2 pages)
- "Kincaid Creatures Magic Squares" student handout
- "Kincaid Creatures Magic Squares" teacher answer key
- Computer lab with Internet access

Lesson Duration: One or two 45 min. class periods

Objectives:
7th grade

- Social Studies 113.23 (1A), identify the major eras in Texas history
- Social Studies 113.23 (21C), organize and interpret information from visuals
- Social Studies 113.23 (22C), transform information from one medium to another
- Science 112.23 (2E), construct simple graphs, tables, maps, and charts to organize, examine, and evaluate information.
- Science 112.23 (12C), describe how different environments support different varieties of organisms.
- Mathematics 111.23 (2F), select and use appropriate operations to solve problems.
- English Language Arts and Reading 110.23 (8C), read for varied purposes such as to be informed
- English Language Arts and Reading 110.23 (10K), answer different types and levels of questions.
- English Language Arts and Reading 110.23 (15C), write to inform
- English Language Arts and Reading 110.23 (22B), interpret important events from graphics

Activity:

Part 1
Step 1: Ask students to think of nocturnal and diurnal wild animals they see in their neighborhoods. Students living in rural settings will probably be able to list more than

students in urban settings. As students name the animals, write them on an overhead transparency, a flipchart, or the board.

Step 2: Advise students that had they lived in their same neighborhoods during the "Great Ice Age" (Pleistocene Era), some 13,000 years ago, they would have seen a much different variety of animals than they see today.

Step 3: Distribute the "Kincaid Shelter Stratigraphy" handout (page 1) and place a transparency of the stratigraphy diagram on the overhead. Read the handout with students and explain that archeologists record their site findings in several ways, one of which uses stratigraphy. Point out that the zones or layers (also called strata) are numbered.

Step 4: Have students work with a partner or in small groups to answer the questions on page 2 of the "Kincaid Shelter Stratigraphy" worksheet. When done, have students volunteer to share their answers to questions #1,7, & 8 with the class.

Step 5: Explain that during the next class period, students will search a Kincaid Shelter website for animals whose remains were found in different layers of the Kincaid Shelter site. They will then use the animal names to solve a puzzle.

Part 2

Step 1: Remind students that in Part 1 of the lesson, they discussed wild animals found in their neighborhoods and were introduced to the stratigraphy of Kincaid Shelter, where remains of many wild animals were found.

Step 2. Distribute the "Kincaid Creatures Magic Squares" handout. Explain to students that in the grid they will see nine Magic Squares, each containing the name of one of the animals found at Kincaid Shelter. Below the grid they will see descriptions of the animals and will match the number of each description to the corresponding animals' name in each "magic" square. Explain that students can check their work by adding up the numbers in the rows of squares both horizontally and vertically. Each row should add up to the same "magic" number. If their rows don't add up to that number, they have an incorrect answer and must check their work. When their numbers add up correctly, they have discovered the "magic" number, which they will record on the worksheet.

Step 3: Have students go to the Texas Beyond History website (http://www.texasbeyondhistory.net) and open the "Kincaid Shelter" exhibit. Explain that in different sections of this exhibit they will find the animals named on their "Kincaid Creatures Magic Squares" handout and use these animals' names to fill in their handout's "Magic Squares."

Modification: (for special learning needs)

Day 1 – On a transparency of the "Kincaid Shelter Stratigraphy" handout, answer questions #2, 3, 4, 5, & 6 as a class and have students fill in their answers from the overhead.

Day 2 – Help student fill in the answers to questions #2 and #9 on the "Kincaid Creatures Magic Squares" handout.

Student Product: Completed "Kincaid Shelter Stratigraphy" and "Kincaid Creatures Magic Squares" handouts.

Closure: Ask students this question: How can archeologists help us better understand the ways humans and animals interacted in the past and how animals might have become extinct over time?

Assessment or evaluation:
Students will correctly complete the "Kincaid Shelter Stratigraphy" handout questions and the "Kincaid Creatures Magic Squares" handout.

Extension: **[optional]** Have students view the Megafauna website (will include the URL, along w/ others, as soon as I'm online again.

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Kincaid Creatures Stratigraphy
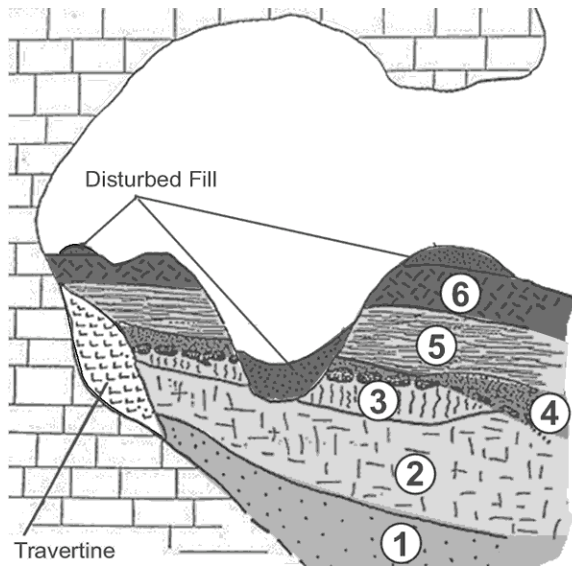
Zone 6: Midden deposit of loose ashy dust, charcoal, burned rock, and artifacts of Archaic, Late Prehistoric, and Historic period.

Zone 5: Silty "midden" deposit with remains of modern animals and debris left by Early, Middle, and Late Archaic peoples.

Zone 4: Major culture-bearing deposit of Pleistocene age with bones of extinct animals and evidence of stone tool-making by Clovis peoples more than 13,000 years ago. Deposit consists of pond clay, flood-borne limestone grit, and travertine from seep springs.

Rock Pavement: Stone floor constructed by Paleoindian peoples.

Zone 3: Pond deposit of travertine and clay containing bones of many species of extinct animals. Pond fed by a seep spring flowing down back wall of the shelter, filling slight depression in surface of Zone 2

Zones 1 and 2: Fluvial (water-borne) deposits in which excavators found no evidence of human occupation.

Some 13,000 years ago, humans lived in the Kincaid Shelter in the Hill Country of Central Texas. Exploring the shelter's stratigraphy (see definition below), archeologists found the remains of many animals, some of which are now extinct.

Generally, stratigraphy is the layering of the earth that makes up an archeological site and includes the fossils and artifacts contained in each level of a site. In general, younger layers (strata) are deposited on top of older layers and younger, or newer, artifacts are found above older artifacts.

Use the above diagram and explanations to answer the questions on the following page.

The diagram on the previous page illustrates the layers (zones) excavated at the Kincaid Shelter archeological site in Central Texas, where ancient humans lived and hunted different animals as long ago as 13,000 years. Using the stratigraphy diagram on page 1, answer the following questions.

1. If you were an archeologist, which of the zones would be the most interesting to research? Explain your answer in complete sentences.

2. Which zone in the diagram is the oldest?

3. List 2 pieces of information from the diagram that helped you answer question #2.

4. Information in Zone 4 mentions extinct animals. What does extinct mean?

5. List 3 reasons to explain why animals might become extinct.

6. Name one animal alive today that is in danger of becoming extinct.

7. Do you think efforts to save endangered animals are worthwhile? Explain your answer in complete sentences.

8. Of all the wild animals in your neighborhood, which would you most hate to see become extinct? Explain your answer.

Kincaid Creatures Magic Squares

Directions: At the Kincaid Shelter in central Texas, we know that many different animals visited the site over the last 13,000 years. Use the website (URL for Kincaid exhibit) to correctly identify nine of these animals.

In each square, write the number of the description that describes the animal named in that square. Write the sum of the numbers from each row on the line outside the grid. Numbers in all rows, horizontal and vertical, should add up to the same "magic" number.

Camel	Sloth	Dire Wolf	
____	____	____	____
Horse	American lion	Deer	
____	____	____	____
Bison	Mammoth	Alligator	
____	____	____	____

        ____   ____   ____

1. Reptile that lived in and around the ancient Sabinal River

2. Mammal whose remains came from the oldest layer at Kincaid

3. Also called Mylodon

4. Its African relative is sometimes called "King of the Jungle."

5. Ancient relative of today's dogs

6. Modern version of this mammal was hunted by plains Indians such as the Comanche.

7. Hump-backed mammal with modern relatives in Middle Eastern deserts

8. Related to today's elephant

9. Animal remains found in the youngest (most recent) layer at Kincaid site

The magic number is _____.

Kincaid Creatures Magic Squares
Answer Key

Camel 7 _____	**Sloth** 3 _____	**Dire Wolf** 5 _____	15 _____
Horse 2 _____	**American lion** 4 _____	**Deer** 9 _____	15 _____
Bison 6 _____	**Mammoth** 8 _____	**Alligator** 1 _____	15 _____

15 _____   15 _____   15 _____

The magic number is 15.