

Zooarchaeology

This module is a great tie-in with our bioarchaeology module!

Standards Covered in this Module

NGSS:

4-LS1-1: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

5-PS1-3. Make observations and measurements to identify materials based on their properties.

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

MS-PS1-2. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

MS-LS3-1. Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.

MS-LS4-1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.

MS-LS4-2. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships

Common Core:

MP.2 Reason abstractly and quantitatively.

6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

6.SP.A.2 Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

Guiding Question

What can scientists learn about a civilization by studying animal bones are found in a dig site?

Word wall

Biology – The study of life

Zooarchaeology – The study of remains that animals leave behind when they die (faunal remains)

Procedure

Video: Dr. Deirdre Fulton

Look at this site from California Academy of Sciences on Animal Skulls

Junior Archaeologist Assignment

Interactive Homework

Junior Archaeologist Assignment

If you found this bone while excavating, would you know what it is?



Many times, archaeologists look at what is around the bones to help figure out what animals they belong to. We found many of these **fish vertebrae** near cooking pits in Ashkelon grids, so we knew that people during the Phoenician and Philistine time period must have eaten a lot of fish. We could also conclude that since Tel Ashkelon was so close to the water, fish must have been a major source of their diet.

How else can we find out the diet of someone (or something)? You will try to figure out what an owl eats in the following experiment. First, you will need owl pellets. You can get them online for fairly cheap (they sell them on Amazon for \$11.95 per 5 pack). Owl pellets are the part of the animals that an owl ate that has been regurgitated because the owl cannot digest it. Before they come to your house, these pellets have been sterilized, so don't worry about getting sick from them.

When you have the owl pellet, you will use a shallow Tupperware to keep your entire pellet together in one area. Use toothpicks to separate the fur in the pellet delicately and tweezers to remove the bones that you find. When you are done and have removed all of the bones, place them on your logbook sheet and try to form a skeleton of what the animal used to look like. There may be more than one animal, so more than one space has been included. When you are done, try to identify the animal type based on the skull. Pay careful attention to the holes behind the eyes and the teeth and jaw that your organism has!

Interactive homework

The next time your parent goes to the grocery store, look in your meat section at the different bones that you see. What do you notice about the bone size? Do they always look the same? Ask the butcher if they have any bones in the back from meat they have cut that they can show you. Do you think that you could identify the animal that they came from just from seeing the one piece of bone? (Many of the zooarchaeologist at Ashkelon have to do this. They also put their tongues on the bones to tell if it is a piece of wood or an actual bone-it's bone, it will stick! You probably shouldn't try that with bones from the meat counter, though!)