



ANSWER KEY

Exercise: 1

Instructions: Stratigraphy is the study of layers of rock that have been laid down over the ages. These layers can help us to determine the relative age of rocks because the younger rocks are generally deposited on top of older rocks. Paleontology is the study of the fossilized remains of plants and animals. Fossils are found in different layers of rock that can be aged in part because of our understanding of stratigraphy. Scientists study these fossils and where they are found in the rock layers to learn about the plant or animal and the time when it existed.

1. There are numerous bones found on site at Hagerman. Go to the Fossil Beds Photo database located on the main page of the Hagerman Fossil Beds site and click on the bone measurement photographs. Click on *Atlas Home*, *Geology*, *Parks and Monuments*, *Hagerman Fossil Beds*, then on *Start Monument Module*. Conduct some basic measurements on 5 pictures of bones and estimate the approximate size of the animal. Write the name of the animal and its approximate size.

Answers will vary depending on fossils selected and on accuracy of sketches.

2. The fossil bones found at Hagerman have been preserved in excellent condition. What conditions were present to favor fossilization?

Animal fossilized should generally have hard parts. In order to get such excellent preservation, the animal remains must escape destruction and it must be buried quickly in sediment of some form to protect it from oxygen and microorganisms that would eat it.

3. What is considered to be the most important fossil found at Hagerman?

Of all the fossils uncovered, the most important find was the large volume of a species of extinct horse known as *Equus simplicidens*, and named the Hagerman horse.

GO TO the Hagerman (location described in question #1) section and use the home page menu to access the *Hagerman reference diagrams* for help answering the next questions:

4. Select three different fossils. Based on the fossil range chart provided, what is the approximate age of these different fossils at Hagerman?

See Fossil Range Chart for various ages of fossils. Answers will vary depending on fossils selected.

5. Look over the stratigraphic columns and determine what the depositional environment was and whether or not it had changed through time.

See Peter and Fossil Gulch stratigraphy. The depositional environment varies depending on the time period, and it does change as time passes. You can see this by looking at the thickness and kinds of materials in each layer. Thick sedimentary layers with a large particle size may indicate a period of flooding. A layer of volcanic rock would indicate lava flows during that time period.