Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Class Period:\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_

Book F Chapter 3

Lesson 4 Review

**Make sure to review all vocabulary words!!**

|  |  |
| --- | --- |
| \_\_\_B\_\_1. fossil | A. a type of fossil that forms when sediments fill in the cavity left by a decomposed organism |
| \_\_\_C\_\_2. trace fossil | B. the trace remains of an organism that lived long ago, most commonly preserved in sedimentary rock |
| \_\_\_E\_\_3. mold | C. a fossilized mark that is formed in soft sediment by the movement of an animal  (tracks, burrows, footprints) |
| \_\_\_A\_\_4. cast | D. a fossil that is found in the rock layers of only one geologic age and that is used to establish the age of rock layers |
| \_\_\_D\_\_5. index fossil | E. a mark or cavity made in a sedimentary surface by a shell or other body |

**Answer the following questions on loose leaf paper using complete sentences.**

6. How old is Earth? The Earth is approximately 4.6 billion years old.

7. How are fossils helpful when learning about the history of Earth?

Fossils help scientists organize the entire history of Earth. Fossils can provide clues to organisms that once lived on the planet as well as reveal information about past climates and conditions on Earth. The fossil record is not complete; scientists must fill in the gaps by making inferences based on the evidence they uncover in the rocks and fossils

8. Compare and contrast relative dating and absolute dating.

\* 1 similarity

\* 2 – 3 differences

|  |  |  |
| --- | --- | --- |
| **RELATIVE DATING** | **SIMILARITIES** | **ABSOLUTE DATING** |
| \*compares two or more objects or events  \*used to determine which rock, fossil or event is older than another rock, fossil or event  \*does not result in a numeric age  \*uses SUPERPOSITION – objects found in top layers are younger than objects found deeper under the surface  \*must be done at the site where you found the rock or fossil – records and observations are done before rock or fossil is removed for further study | \*both methods are used to scientifically prove the age of a rock or fossil | \*uses only one object  \*uses RADIOMETRIC dating – measuring the amount of radioactive particles in an object  \*method can determine the numerical age range of an object  \*must be done in a lab using lab equipment |

9. What is the difference between a body fossil and a trace fossil?

\* provide 3 examples of each type of fossil

|  |  |
| --- | --- |
| **BODY FOSSILS** | **TRACE FOSSILS** |
| **remains of once living organisms**  examples include: bones, teeth, skin  fossils can be altered or not altered  altered: petrification, molds, casts  not altered: mummification, freezing  \*actual cells / tissue remain from organism | **evidence that a living organism was once present**  examples include: tracks, trails, footprints, nests, burrows, insect hives, fossilized poop |

10. Explain how mummification is different from petrification. (These are two types of body fossils)

**Natural** **mummification** is an example of a NON-ALTERED body fossil. In this type of fossil, actual bones, skin, organs, tissue or cells are present. A scientist may actually be able to study the cells from this organism. Mummification can occur when organisms are trapped in amber or tar, or can be frozen in ice. THESE TYPES OF FOSSILS ARE VERY RARE.

**Petrification** is an example of an ALTERED body fossil. In this type of fossil, minerals replace bone, tissue and cells. No genetic material is left behind. Other types of altered body fossils include molds/casts. Molds are formed from the impression of the organism. The actual organism decays and leaves behind an imprint in soft sediment. A cast is formed from a mold – sediment can fill in the depression, creating a 3D cast of the organism. THESE TYPES OF FOSSILS ARE COMMON.

11. What is an index fossil?

An index fossil can assist a scientist to estimate the age of an object. Index fossils are special because they are fossils of an organism that are found all over the planet and have been thoroughly researched. An index fossil can be used as a reference point or a ‘shortcut’ to help figure out the ages of objects found around the index fossil. An ammonite is an example of an index fossil.

12. If you find fossils of fish and other marine creatures in a desert, what can you infer about the history of the desert?

Marine fossils discovered in a desert environment indicate that at one time the desert must have been an aquatic environment. A lake or ocean must have been present in order for the marine organisms to survive. The discovery of this type illustrates the drastic changes that have occurred over the 4.6 billion year history of Earth.