

Historical Geology: A Glimpse of the Earth's Past

Pre-Test

True or False

Directions: Label each statement with a "T" if it is true or "F" if it is false.

___ 1. The study of historical geology focuses only on the types of rock and landforms that have appeared over billions of years.

___ 2. Over time the continental landmasses of the Earth have changed in form and position.

___ 3. The geological time scale is a time line dividing the Earth's history into units representing millions of years.

___ 4. Over time, scientists have observed that life is adapted to varying conditions on the Earth.

___ 5. The force of gravity does not enable the planet to retain an atmosphere.

Directions: Answer the following questions to the best of your ability. Use the back of this sheet if you need additional space.

6. What information do fossils indicate about the Earth's past?

7. Which unit of time is best represented by rocks containing abundant fossil evidence, the Precambrian or the Phanerozoic?

8. How did the melting of large glacial formations affect sea levels?

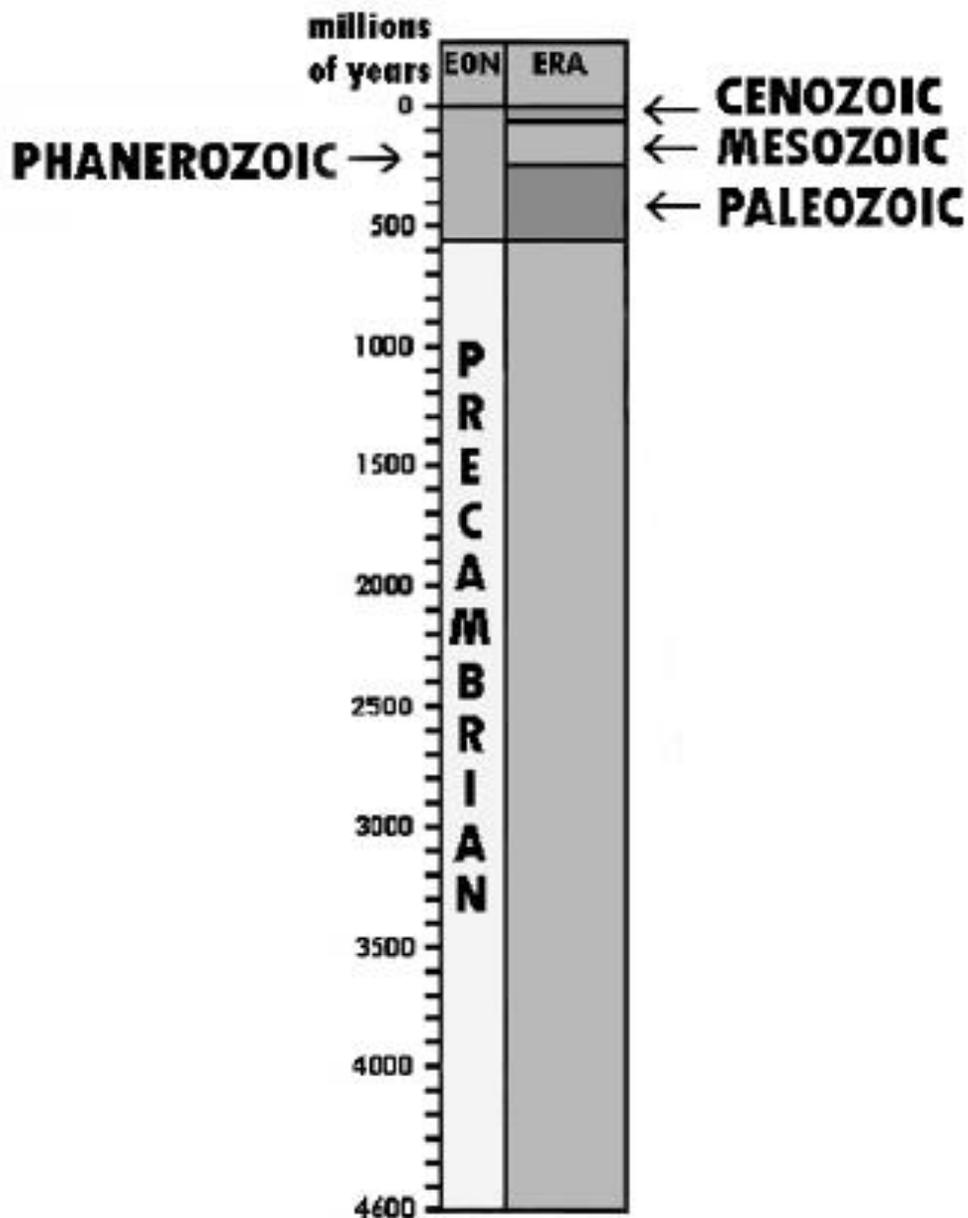
9. According to fossil remains, what were the first life forms on this planet?

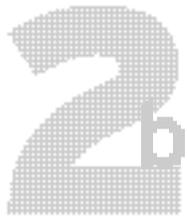
10. Name an environmental condition during the Earth's history that may have been the cause for a mass extinction of life forms.

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The Geologic Time Scale

Geologic time is a method of ordering and measuring past events. These time periods have been given names that correspond to segments of the distant past. The time before the Phanerozoic eon is usually referred to as the "Precambrian."



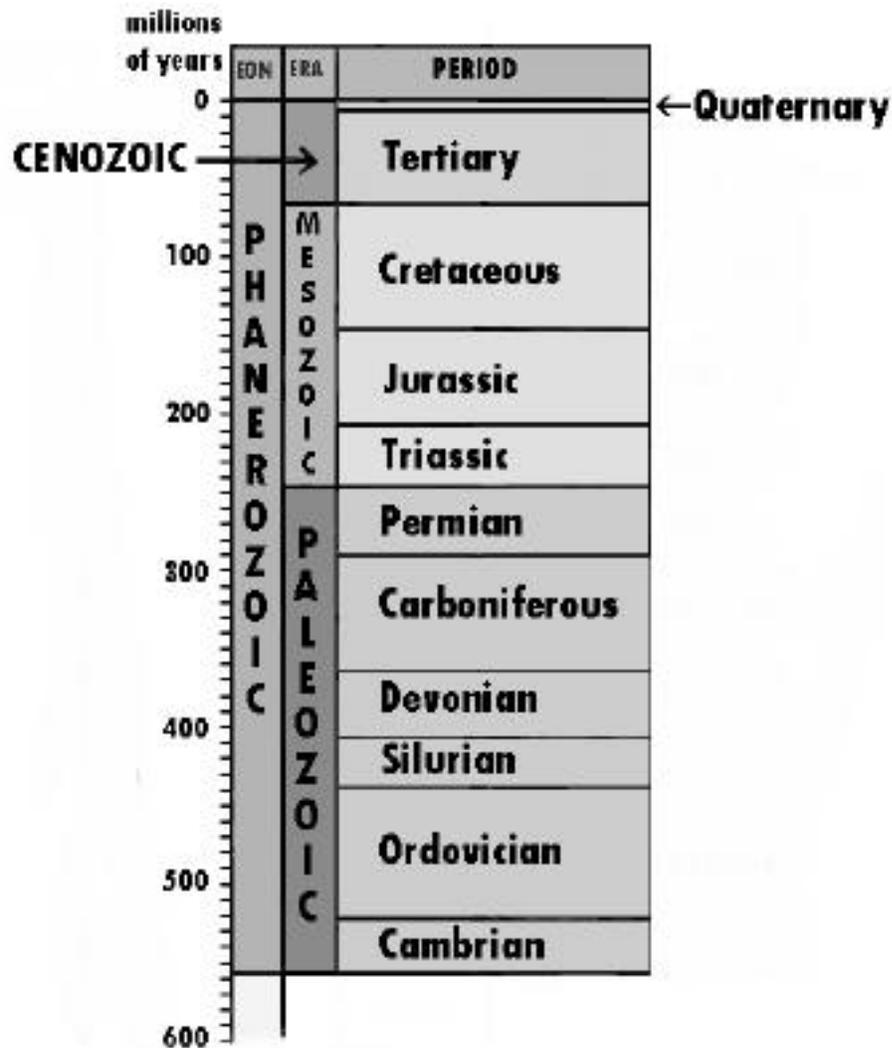


NAME _____

Historical Geology: A Glimpse of the Earth's Past

The Geologic Time Scale of the Phanerozoic Eon

Geological time is a method of ordering and measuring past events. These time periods have been given names that correspond to segments of the distant past.



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Vocabulary List

Atmosphere: the gaseous portion of a planet.

Eon: the largest time unit on the geological time scale.

Era: a major division on the geologic time scale that is a subdivision of an eon.

Fossils: the remains or traces of organisms preserved from the geologic past.

Geologic time scale: the division of the Earth's history into blocks of time - eons, eras, periods, and epochs.

Glaciation: covered with or affected by a glacier.

Igneous rock: rock formed by the crystallization of molten magma.

Pangea: proposed super continent, which 200 million years ago began to break apart and formed the present landmasses.

Paleontologist: a scientist who studies fossils and the history of life on Earth.

Periods: a basic unit of the geologic time scale that is a subdivision of an era.

Phanerozoic: that part of geologic time represented by rocks containing abundant fossil evidence.

Plate tectonics: the theory which proposes that Earth's outer shell consists of individual plates which interact in various ways.

Precambrian: all geologic time prior to the Phanerozoic eon.

Radiometric dating: a complex procedure of calculating the absolute ages of rocks.

Relative dating: a form of dating by placing rocks in their proper sequence.

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Vocabulary Word Match

Directions: Match the letter of the definition with the correct definition by putting the letter in the blank.

- | | |
|----------------------------|--|
| ___ 1. relative dating | A. the gaseous portion of a planet |
| ___ 2. radiometric dating | B. a complex procedure of calculating the absolute ages of rocks |
| ___ 3. fossils | C. the division of Earth history into blocks of time - eons, eras, periods, and epochs |
| ___ 4. geologic time scale | D. the largest time unit on the geological time scale |
| ___ 5. eon | E. a major division on the geologic time scale that is a subdivision of an eon |
| ___ 6. paleontologist | F. a rock formed by the crystallization of molten magma |
| ___ 7. periods | G. covered with or affected by a glacier |
| ___ 8. atmosphere | H. all geologic time prior to the Phanerozoic eon |
| ___ 9. Precambrian | I. proposed super continent which 200 million years ago began to break apart and formed the present landmasses |
| ___ 10. igneous rock | J. a basic unit of the geologic time scale that is a subdivision of an era |
| ___ 11. stromatolites | K. that part of geologic time represented by rocks containing abundant fossil evidence |
| ___ 12. plate tectonics | L. the remains or traces of organisms preserved from the geologic past |
| ___ 13. Pangea | M. rocks are placed in their proper sequence of formation for dating |
| ___ 14. Phanerozoic eon | N. the theory which proposes that Earth's outer shell consists of individual plates which interact in various ways |
| ___ 15. glaciation | O. dome-like structures formed when sticky organic filaments of bacteria and algae trap mud |
| ___ 16. era | P. a scientist who studies fossils and the history of life on Earth |

Historical Geology:

A Glimpse of the Earth's Past

Interactivity Worksheet

Directions: Study the timelines on work sheets Geologic Time Scale 2a-b. Next, review the categories of worksheets 4a-d. While viewing the program *Historical Geology: A Glimpse Of The Earth's Past*, record the information presented about each time segment next to the proper category listed on this worksheet. Note: "GEOLOGICAL SETTING" refers to the continental landmasses positioned on the Earth as well as other geological events such as volcanism, mountain formation, and ocean formation.

1. PRECAMBRIAN

Approximately 4,600 million years ago - 544 million years ago

GEOLOGICAL SETTING:

LIFE:

CLIMATE:

2. PHANEROZOIC EON > PALEOZOIC ERA > CAMBRIAN PERIOD

Approximately 544 million years ago - 505 million years ago

GEOLOGICAL SETTING:

CLIMATE:

LIFE:

Historical Geology:**A Glimpse of the Earth's Past****Interactivity Worksheet (cont.)****3. PHANEROZOIC EON > PALEOZOIC ERA > ORDOVICIAN PERIOD**

Approximately 505 million years ago - 440 million years ago

GEOLOGICAL SETTING:

CLIMATE:

LIFE:

4. PHANEROZOIC EON > PALEOZOIC ERA > SILURIAN PERIOD

Approximately 440 million years ago - 410 million years ago

GEOLOGICAL SETTING:

CLIMATE:

LIFE:

5. PHANEROZOIC EON > PALEOZOIC ERA > DEVONIAN PERIOD

Approximately 410 million years ago - 360 million years ago

GEOLOGICAL SETTING:

CLIMATE:

LIFE:

Historical Geology:**A Glimpse of the Earth's Past****Interactivity Worksheet (cont.)****6. PHANEROZOIC EON > PALEOZOIC ERA > CARBONIFEROUS PERIOD**

Approximately 360 million years ago - 286 million years ago

GEOLOGICAL SETTING:

CLIMATE:

LIFE:

7. PHANEROZOIC EON > PALEOZOIC ERA > PERMIAN PERIOD

Approximately 286 million years ago - 245 million years ago

GEOLOGICAL SETTING:

CLIMATE:

LIFE:

8. PHANEROZOIC EON > MESOZOIC ERA > TRIASSIC PERIOD

Approximately 245 million years ago - 208 million years ago

GEOLOGICAL SETTING:

CLIMATE:

LIFE:

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Interactivity Worksheet

9. PHANEROZOIC EON > MESOZOIC ERA > JURASSIC PERIOD
Approximately 208 million years ago - 146 million years ago

GEOLOGICAL SETTING:

CLIMATE:

LIFE:

10. PHANEROZOIC EON > MESOZOIC ERA > CRETACEOUS PERIOD
Approximately 146 million years ago - 65 million years ago

GEOLOGICAL SETTING:

CLIMATE:

LIFE:

11. PHANEROZOIC EON > CENOZOIC ERA
Approximately 65 million years ago - present

GEOLOGICAL SETTING:

CLIMATE:

LIFE:

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Discussion Questions

Directions: Following are questions to help you further understand the concepts presented in the program *Historical Geology: A Glimpse of the Earth's Past*. You may refer to your notes from your Interactivity Worksheets.

1. How do scientists discover information about the Earth's past?
2. What is the geologic time scale?
3. Identify some of the significant events, life forms, and environmental conditions that occurred during the Precambrian, approximately 4,600 million years ago to 544 million years ago.
4. Identify some of the significant events, life forms, and environmental conditions that occurred during the Paleozoic era, approximately 544 million years ago to 245 million years ago.
5. Identify some of the significant events, life forms, and environmental conditions that occurred during the Mesozoic era, approximately 245 million years ago to 65 million years ago.
6. Explain what type of events, life forms, and environmental conditions that are happening during the Cenozoic era, approximately 65 million years ago to the present.
7. Identify what types of events, life forms, and environmental conditions that have triggered the mass extinction of many life forms on the Earth.

Historical Geology: A Glimpse of the Earth's Past

Video Quiz

True or False

Directions: Label each statement with a "T" if it is true or "F" if it is false.

___ 1. The geological history of the Earth only describes what kinds of rocks existed a long time ago.

___ 2. The continental landmasses of the Earth have remained in the same location throughout all of the earth's history.

___ 3. The geologic time scale is a time line dividing the Earth's history into units representing millions of years.

___ 4. Over time, scientists have observed that life has adapted to varying conditions on the Earth.

___ 5. The force of gravity enables the planet to retain an atmosphere.

Directions: Answer the following in complete sentences. Use the back of this sheet if additional space is needed.

6. What information can fossils reveal about the Earth's past?

7. Which unit of time is best represented by rocks containing abundant fossil evidence, the Precambrian or the Phanerozoic?

8. What happens to the sea levels when large glacial formations melt?

9. What were the first rocks and the first life forms on the Earth?

10. Name an environmental condition during the Earth's history that may have been the cause for a mass extinction of life forms.

Historical Geology:

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Post-Test

True or False

Directions: Label each statement with a "T" if it is true or "F" if it is false.

- ___ 1. The geological time scale is a time line dividing the Earth's history into units representing millions of years.
- ___ 2. The continental landmasses have never formed, reformed, and moved over time.
- ___ 3. Near the end of the Precambrian, there is evidence that there was an increase in oxygen, the byproduct of photosynthesis.
- ___ 4. According to the evidence of fossilized life forms, scientists have observed that life is adapted to varying conditions on the Earth.
- ___ 5. The force of gravity enabled the planet to retain an atmosphere that maintained a climatic condition that never changed and remained constant throughout the Earth's history.

Multiple-Choice

Directions: Circle the word that best completes the sentence.

6. Sediments and rocks from the Phanerozoic eon, 544 million years ago to the present contain a(n) _____ of animal and plant fossils.
- a. abundance b. lack c. insignificant number d. poor selection
7. Global patterns of life underwent _____ during the history of the Earth.
- a. a few changes b. no change c. tremendous change d. little alteration
8. According to fossil evidence, most of the life forms existed in the _____ during the Earth's early history of life.
- a. forest b. desert c. atmosphere d. oceans and shallow seas
9. When there is a significant lack of fossil evidence in the Earth's rock beds from a specific time period after 544 million years ago, scientists believe that a great _____ has taken place.
- a. mass extinction b. population explosion c. aquatic event d. terrestrial event

