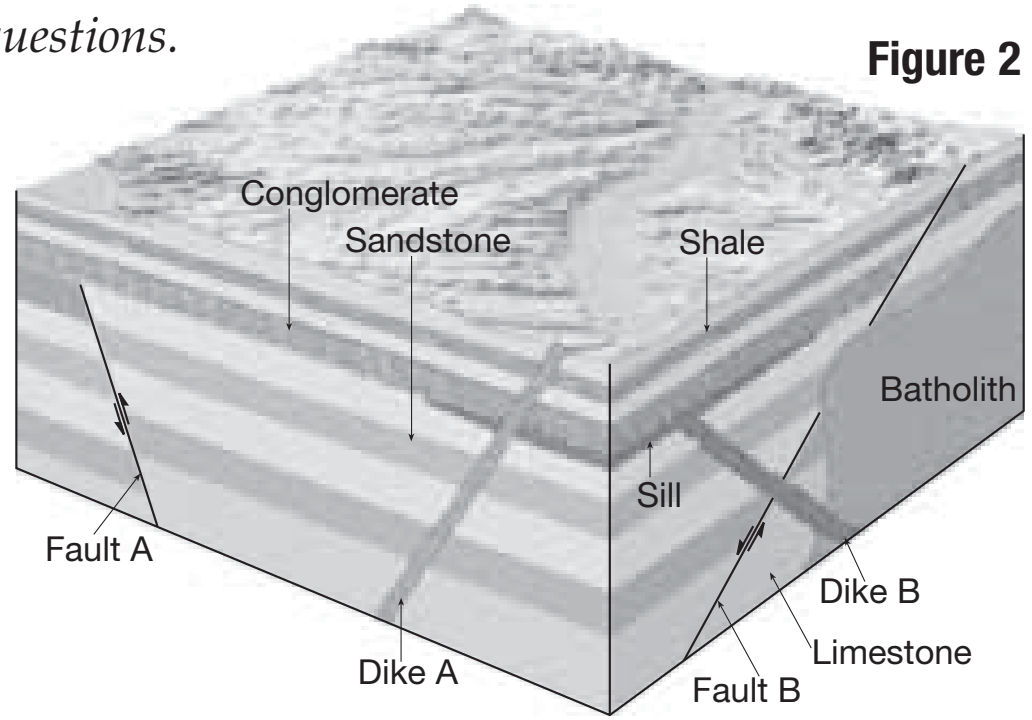
Name _____ Date _____

EARTH'S HISTORY VOCABULARY

Use Figure 2 to answer the following two questions.

Figure 2



10. Interpreting Graphics Which is older—the sandstone layer or Dike A? Explain your answer.

11. Applying Concepts Did Fault A occur before or after the deposition of the layer of conglomerate? Explain your answer.

epoch **Mesozoic** **geologic time scale** **period** **eon** **era**

Geologists have organized the events of Earth's history and represented them on the **(1)** _____. This record of Earth's history is divided into units of time, the longest of which is the **(2)** _____, measured in billions of years. The next longest unit of time, the **(3)** _____, is measured in hundreds of millions to billions of years. The name of one such unit of time is the **(4)** _____, which means "middle life." The unit of geologic time defined by the abundance or extinction of life-forms during the time that certain rocks were deposited is the **(5)** _____. An even smaller unit of time, the **(6)** _____, is usually measured in terms of millions to tens of millions of years.

carbon films	**index fossils**	**permineralized remains**
cast	**mineral replacement**	**trace fossils**
coal	**mold**	
fossils	**original remains**	

_____ **1.** thin film of carbon residue forming a silhouette of the original organism

_____ **2.** soft spaces inside an organism are filled with minerals from groundwater

_____ **3.** hard, outer cavity in the rock where fossil has been dissolved

_____ **4.** fossilized tracks and evidence of activity of organisms

_____ **5.** traces of species that existed on Earth, used to judge climate, environment, and geologic time

_____ **6.** minerals or sediments fill a fossil mold

_____ **7.** totally carbonized remains, now used as fuel source

_____ **8.** the replacement of hard and soft parts of an organism

_____ **9.** remains, imprints, or traces of prehistoric organisms

_____ **10.** entire, complete organism found in amber, ice, or natural tar pit

_____ 1. shield

_____ 2. nebula

_____ 3. evolution

_____ 4. geologic column

_____ 5. epoch

_____ 6. mass extinction

_____ 7. index fossil

_____ 8. period

_____ 9. geologic time scale

_____ 10. impact hypothesis

a. a fossil that is used to date rocks

b. a unit of geologic time that is longer than an age but shorter than a period

c. an episode during which an enormous number of species dies

d. a large area of exposed Precambrian rocks

e. a large cloud from which Earth formed

f. a theory that a meteorite caused the extinction of dinosaurs

g. the gradual development of new organisms from preexisting organisms

h. an ordered arrangement of rock layers

i. a unit of geologic time that is longer than an epoch but shorter than an era

j. a chart outlining the development of Earth and life on Earth

_____ 1. ammonite

_____ 2. pterosaur

_____ 3. cycad

_____ 4. angiosperm

_____ 5. ichthyosaur

a. a flowering plant or tree

b. a shellfish fossil that serves as a Mesozoic index fossil

c. a reptile that lived in Triassic oceans

d. a plant with fernlike leaves in Triassic forests

e. a flying reptile of the Jurassic Period

_____ **1.** absolute dating

_____ **2.** half-life

_____ **3.** radioactive decay

_____ **4.** radiometric dating

_____ **5.** uniformitarianism

a. time it takes for half of the atoms in an isotope to decay

b. breaking down of a neutron into a proton and an electron

c. principle that Earth processes occurring today are similar to those that occurred in the past

d. process that uses the properties of atoms in rocks and other objects to determine their ages

e. calculating the absolute age of a rock by measuring the amounts of parent and daughter materials in a rock and by knowing the half-life of the parent material

_____ 1. original horizontality

_____ 2. disconformity

_____ 3. angular unconformity

_____ 4. law of superposition

_____ 5. nonconformity

a. folded or tilted rock comes to the surface, erodes, and new sediment is deposited

b. sedimentary layer over unstratified rock

c. horizontal layers of old sedimentary rock erode, then get covered by new layers

d. undisturbed sedimentary rock remains in horizontal layers

e. a sedimentary rock layer is older than the layers above it and younger than the layers below it

_____ 1. half-life

_____ 2. radiometric dating

_____ 3. radiocarbon dating

_____ 4. varve

_____ 5. alpha decay

a. two protons and two neutrons emitted by the nucleus

b. determining age through comparison of isotopes

c. the time it takes for half a sample of a radioactive isotope to decay

d. using organic remains to date objects

e. banded layers of sediment deposited annually

_____ 1. geologic time scale

_____ 2. period

_____ 3. era

_____ 4. epoch

_____ 5. geologic column

a. a unit of geologic time by which an era is divided

b. a table that outlines Earth's development

c. a unit of geologic time that includes two or more periods

d. an ordered arrangement of rock layers based on their ages

e. a unit of geologic time by which a period is divided

crust	**crystallize**	**differentiation**	**float**	**granite**
lava	**mantle**	**nickel**	**oceanic crust**	**subduction**

1. When Earth formed, the dense minerals iron and _____ were concentrated in Earth's core.
2. Minerals with low densities tend to _____ at cooler temperatures than do denser minerals.
3. The common crustal rock _____ is mainly composed of feldspar, quartz, and mica, which are minerals with low densities.
4. Less-dense minerals became concentrated near Earth's surface by _____ flowing from the hot interior.
5. Denser minerals concentrated below Earth's surface and formed the rocks that make up Earth's _____.
6. The process by which a planet becomes internally zoned is called _____.
7. Earth's _____ probably formed as a result of the cooling of the uppermost mantle.
8. Sediment-covered slabs of Earth's earliest crust were recycled into the mantle at _____ zones.
9. Less-dense material such as crust has a tendency to _____ on more-dense material such as the mantle.
10. A difference in density causes the _____ to be lower in elevation than the less-dense granitic continental crust.

_____ 1. invertebrate

_____ 2. stromatolite

_____ 3. shield

_____ 4. index fossil

_____ 5. vertebrate

a. fossil that is used to date rocks

b. type of animal that thrived in the Cambrian Period

c. type of deposit common in Precambrian rock

d. large area of exposed Precambrian rock

e. type of animal that appeared during the Ordovician Period

Use Figure 1 to answer the following two questions.

3. **Interpreting Graphics** Identify and briefly describe the fossil shown.

_____

_____

_____

4. During which era did this organism exist?

_____

_____

_____

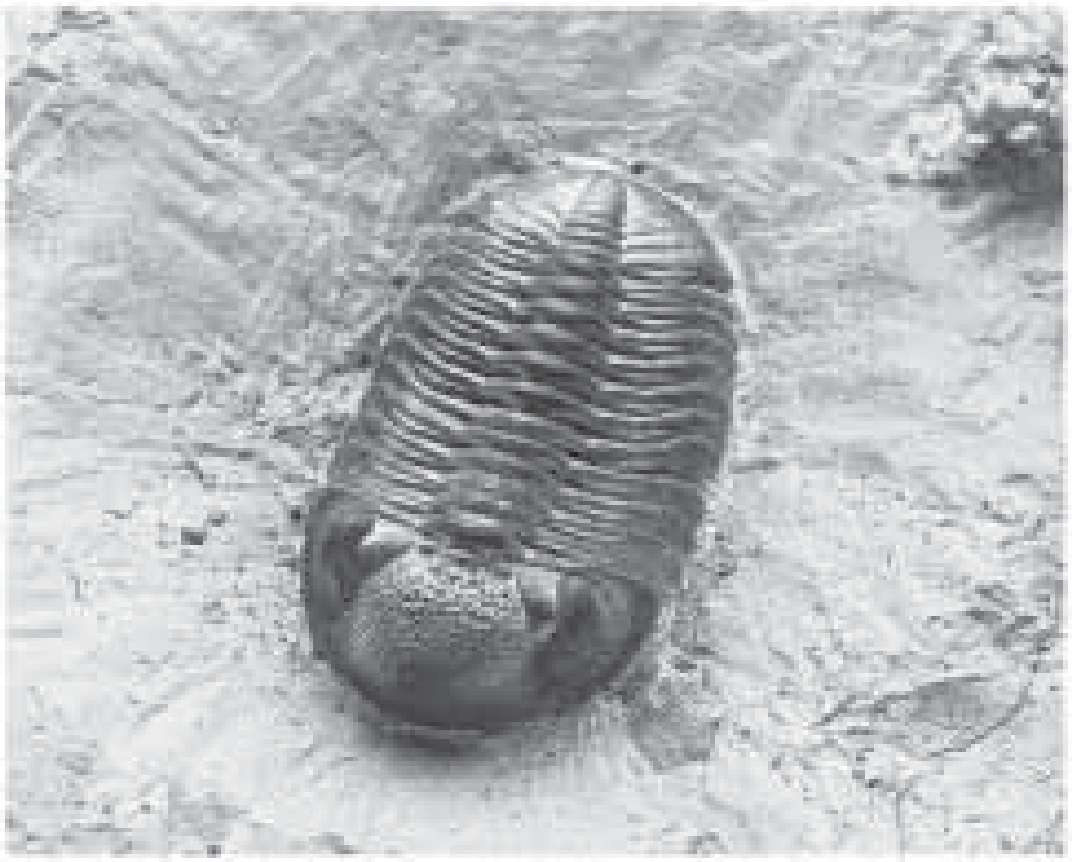


Figure 1

_____ 1. mummification

_____ 2. gastrolith

_____ 3. coprolite

_____ 4. petrification

_____ 5. carbon films

a. fossilized dung or waste

b. fossilized remains of an organism found in very dry places

c. carbonized residue of plants and fish

d. minerals replace organic material

e. fossilized stone from the digestive system of a dinosaur

_____ 1. nonconformity

_____ 2. unconformity

_____ 3. varve

_____ 4. law of crosscutting relationships

_____ 5. radiometric dating

_____ 6. disconformity

_____ 7. trace fossil

_____ 8. uniformitarianism

_____ 9. law of superposition

_____ 10. index fossil

a. sedimentary rock layers are younger than layers below

b. determining absolute age by comparing radioactive and stable isotopes

c. current geologic processes are the same as those that were at work in the past

d. stratified rock resting on unstratified rock

e. a fossilized mark formed by the movement of an animal

f. a fossil used to determine the age of rock layers

g. a break in the geologic record

h. a banded layer of sand and silt deposited annually in a lake

i. a fault or body of rock is younger than any other body of rock it cuts through

j. boundary between horizontal layers of sedimentary rock and younger layers over an eroded surface

8. **Applying Concepts** Look at the timeline in Figure 2. For each letter, write the name of the geologic era.

A. _____ B. _____

C. _____ D. _____

Figure 2

_____ 1. trace fossils

_____ 2. disconformity

_____ 3. varve

_____ 4. unconformity

_____ 5. index fossil

_____ 6. nonconformity

_____ 7. absolute age

_____ 8. uniformitarianism

_____ 9. relative age

_____ 10. law of superposition

a. an interruption in the geologic record

b. a layer of sediment deposited annually

c. numeric age of an object

d. the age of an object in relation to other objects

e. fossilized animal tracks

f. the principle that geologic processes that occurred in the past can be explained by current geologic processes

g. a fossil used to date rock layers

h. sedimentary rock layers are younger than layers below

i. a layer of sedimentary rock over an older, eroded layer of rock

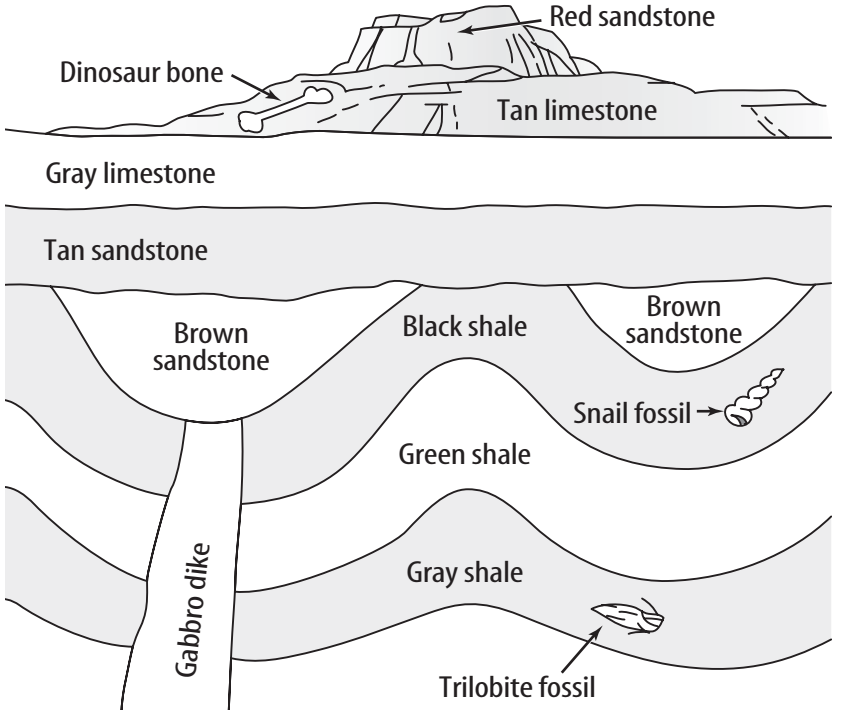
j. a layer of sedimentary rock over unstratified rock

Archean **liquid water** **minerals** **oceans** **outgassing** **water vapor**

Seawater probably originated largely from the same process of **(7)** _____ that formed the atmosphere. A major component of the gas that was vented from early Earth was **(8)** _____. As the early atmosphere and surface of Earth cooled, the water vapor in the atmosphere condensed to form **(9)** _____. During the **(10)** _____, rain slowly filled the low-lying areas on Earth. The low-lying areas were underlain by basalt, and as these basalt-floored basins filled, they formed the **(11)** _____. Rainwater reacted with the **(12)** _____ exposed at Earth's surface and dissolved them, making the oceans of the Precambrian salty.

Directions: *Look at the cross-sectional view of the rock layers shown in Figure 1. For each question, decide which of the two named materials is older. Assume the layers have not been overturned. Write the name of the older material on the line provided.*

Figure 1



_____ **5.** tan sandstone and brown sandstone

_____ **6.** brown sandstone and gray limestone

_____ **7.** gabbro dike and brown sandstone

_____ **8.** gabbro dike and gray shale

_____ **9.** snail fossil and trilobite fossil

_____ **10.** snail fossil and dinosaur bone

_____ **11.** snail fossil and green shale

_____ **12.** dinosaur bone and red sandstone

_____ **13.** red sandstone and gray limestone

_____ **14.** tan limestone and tan sandstone

_____ **15.** tan limestone and gray limestone

_____ 1. Precambrian time

_____ 2. mass extinction

_____ 3. geologic time scale

_____ 4. Mesozoic Era

_____ 5. impact hypothesis

_____ 6. Paleozoic Era

_____ 7. evolution

_____ 8. Cenozoic Era

_____ 9. shield

_____ 10. geologic column

a. an episode during which large numbers of species become extinct

b. a large area of exposed Precambrian rock

c. a geologic era that began about 542 million years ago and ended about 251 million years ago

d. a time period that began with the formation of Earth and makes up about 88% of Earth's history

e. an ordered arrangement of rock layers

f. a division of time that began about 65 million years ago and includes the present day

g. a hypothesis that explains why dinosaurs became extinct

h. a description of the sequence and length of Earth's changes

i. a geologic era known as the Age of Reptiles

j. the gradual development of new organisms from preexisting organisms