**Note-taking
Worksheet****Geologic Time - Chapter 14**
Orange Book**Section 1 Life and Geologic Time**

A. _____ time—Earth's history is divided into time units that make up a geologic time scale.

1. Time units on the scale are based on the appearance or disappearance of types of organisms such as _____, index fossils that lived during specific periods of time.
2. Geologic time is divided into four major _____.
 - a. _____—longest subdivision; based on abundance of fossils
 - b. _____—marked by significant worldwide changes in the types of fossils present in rock
 - c. _____—based on types of life existing worldwide at a particular time
 - d. _____—characterized by differences in life-forms, but differences can be regional rather than global
3. Geologic time can be subdivided only if fossils are present in rock records.

B. _____ evolution—Organisms have changed over time, most likely because of environmental changes.

1. Species—organisms that normally _____ only with other members of their group
2. Darwin's theory of natural _____—organisms more adapted to an environment are more likely to reproduce
3. Natural selection within a species occurs only if characteristics present in some numbers increase their _____.
4. _____ selection—breeding individuals with desired characteristics; humans use this type of selection when breeding domestic animals
5. _____ species can evolve from natural selection.

C. Trilobites—have an exoskeleton with three lobes; lived in oceans for more than 200 million years

1. Trilobite _____ position changed as the species adapted to various environments.
2. Trilobite bodies and _____ changed in response to changing environments.

Note-taking Worksheet (continued)

3. Continental collisions formed the giant landmass _____ near the end of the Paleozoic _____. These collisions may have dropped _____, causing the extinction of trilobites.

Section 2 Early Earth History

A. _____ time—from 4 billion to about 544 million years ago

1. Very few _____ remain from this time.
 - a. Many Precambrian rocks were deeply buried, causing the fossils in them to be changed by _____ and pressure.
 - b. Most Precambrian organisms lacked _____ parts.
2. Cyanobacteria are blue-green _____.
 - a. One of the _____ life forms to appear
 - b. Added _____ to the atmosphere through photosynthesis
3. _____ and Ediacaran animals appeared late in Precambrian time.

B. The _____ Era—about 544 million years ago to about 245 million years ago

1. Many organisms with _____ and vertebrates evolved in the warm, shallow seas.
2. _____ evolved to survive in water and on land.
 - a. Might have evolved from _____
 - b. Could obtain oxygen from _____ or from lungs.
3. _____ evolved from amphibians to survive farther from water
4. Several mountain-building episodes occurred during the Paleozoic Era because of _____ collisions.
5. Most marine and land species became _____ at the end of the Paleozoic Era.

Section 3 Middle and Recent Earth History

A. _____ Era—lasted from 245 to 65 million years ago

1. Pangaea separated into _____ and the climate became drier.
2. _____ evolved; they might have been warm-blooded, traveled in herds, and nurtured their young.

Note-taking Worksheet (continued)

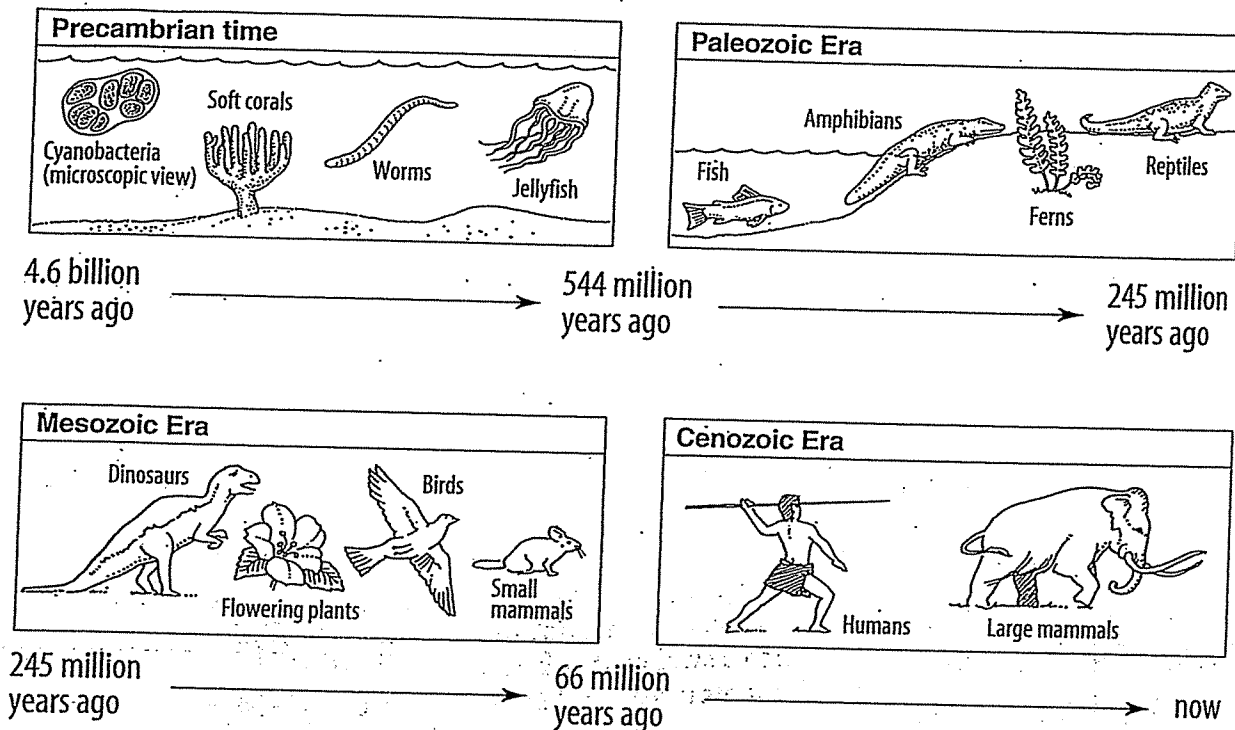
3. _____, which probably evolved from small, meat-eating dinosaurs, appeared during the Jurassic Period.
 4. Small, mouse-like _____, which are warm-blooded vertebrates with hair and milk to feed their young, appeared in the Triassic Period.
 5. _____, plants that produce seeds but not flowers, appeared in the Paleozoic Era.
 6. Flowering plants or _____ appeared during the Cretaceous Period.
 7. A great extinction, perhaps caused by a comet or an asteroid collision, occurred about _____ years ago, marking the end of the Mesozoic Era.
- B. The _____ Era began about 65 million years ago and continues today.
1. Many _____ formed, perhaps creating cooler climates worldwide.
 2. Mammals continued to evolve
 - a. Many species became _____ as the continents continued to separate.
 - b. *Homo sapiens*, or _____, appeared about 400,000 years ago.



Directed Reading for
Content Mastery

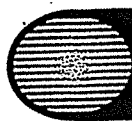
Overview Geologic Time

Directions: Study the diagram. Then complete the sentences below.



Meeting Individual Needs

1. Ferns and reptiles appeared in the _____ Era.
2. In the _____ Era, humans and large mammals appeared.
3. Dinosaurs, birds, and flowering plants first appeared in the _____ Era.
4. During _____ time, the earliest life-forms appeared.
5. Small mammals appeared in the _____ Era.
6. The earliest life-form shown above is _____.
7. Reptiles appeared during the same era as ferns, fishes, and _____.
8. Worms and jellyfishes first appeared in _____ time.



Directed Reading for
Content Mastery

Section 1 ■ Life and Geologic Time

Section 2 ■ Early Earth History

Directions: Circle the term in parentheses that makes each statement correct.

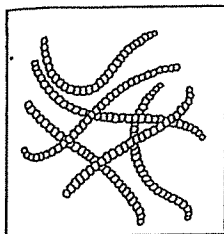
1. The longest subdivisions of geologic time are called (epochs, eons).
2. The division of Earth's history into time units makes up the (geologic time scale, trilobite time scale).
3. A group of organisms that reproduce only with members of their group is a (population, species).
4. The process by which organisms that adapt well to their environment survive and reproduce is called (natural selection, organic evolution).
5. Pangaea formed during the (Paleozoic, Mesozoic) Era.
6. A subdivision of eras, called (epochs, periods), are characterized by the types of life existing worldwide.
7. (Fossils, Plates) help scientists divide Earth's history into time units.
8. The changing of organisms over geologic time is known as (natural selection, organic evolution).
9. The oldest rocks on earth contain (only a few, no) fossils.
10. The Precambrian time is the (longest, shortest) part of Earth's history.
11. Cyanobacteria are (colorless, blue-green) bacteria thought to be one of the earliest forms of life on Earth.

Directions: Write A, B, C, D, or E beneath the proper illustration to show in which order they first appeared on Earth.

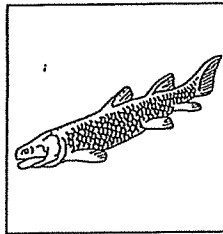
Reptile



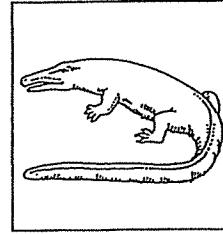
Cyanobacteria



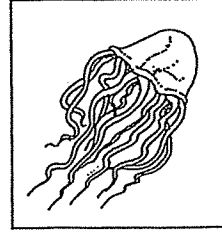
Fish



Amphibian



Jellyfish



12. _____

13. _____

14. _____

15. _____

16. _____