Early Evolution

CLASS NOTES

4.6 Billion Years Ago
• __________________________________ shows that Earth formed

4.5 Billion Years Ago
• During the early formation Earth heated up due to _______________________________ of isotopes within the Earth’s interior

4.4 Billion Years Ago
• During early Earth’s melting, material separated into zones according to their densities
  • ________________________________________________
  • ________________________________________________
  • ________________________________________________

4.2 Billion Years Ago
• Solid crust formed and ________________________________ started
• Gases trapped inside the Earth seeped out in a process called ______________________________ and created a completely different second atmosphere

3.9 Billion Years Ago
• After the crust had cooled enough, __________________________ in the atmosphere began to precipitate and form ______________________ on Earth

3.8 Billion Years Ago
• Weathering erosion, and deposition began and the first ___________________________ rock was formed
Early Evolution

3.5 Billion Years Ago
- Life forms that used __________ and released free __________________ began to evolve
- This allowed for _________________ to start collecting in our atmosphere

3.5 - 2.8 Billion Years Ago
- Oxygen in the atmosphere reacted with iron in the soil to produce _______________________
- Resembled the surface color of current day Mars

2.8 Billion Years Ago
- Most of the _________________ compounds that could have reacted with the oxygen had done so, thus oxygen in the atmosphere _________________

2.8 - Present Billion Years Ago
- Life slowly evolved from single-celled bacteria to multicellular to hard parts on life forms
PART I QUESTIONS: MULTIPLE CHOICE

1. During which period can the earliest birds be found?
   a. Cretaceous
   b. Jurassic
   c. Triassic
   d. Permian

2. According to Earth’s geologic history, studies of the rock record suggest that
   a. humans first appeared at the time of the intrusion of the Palisades sill
   b. the period during which humans have existed is very brief compared to geologic time
   c. evidence of the existence of humans is present over much of the geologic past
   d. the earliest humans lived at the same time as the dinosaurs

3. For which segment of the Earth’s geologic history are fossils rarely found?
   a. Mesozoic
   b. Cenozoic
   c. Paleozoic
   d. Precambrian

4. According to Earth’s geologic history, which rock is most likely the oldest?
   a. conglomerate containing the tusk of a mastodon
   b. sandstone containing fossils of flowering plants
   c. shale containing trilobite fossils
   d. siltstone containing dinosaur footprints

5. Which two forms of life existed together on the Earth during the same time period?
   a. dinosaurs and mastodons
   b. trilobites and birds
   c. flowering plants and trilobites
   d. mastodons and flowering plants

6. The fossil record indicates that most of the plants and animals that lived on Earth in the past
   a. lived on land
   b. have become extinct
   c. appeared during the Cambrian Period
   d. became index fossils

7. For which geologic period are no fossils found in New York State?
   a. Silurian
   b. Ordovician
   c. Devonian
   d. Permian
8. Geologists have subdivided geologic time into units based on
   a. rock type
   b. erosion rates
   c. fossil evidence
   d. landscape development

9. Which statement about dinosaurs is supported by information in your reference tables?
   a. The number of dinosaurs increased before dinosaurs became extinct.
   b. Dinosaur fossils and trilobite fossils may be found in the same rocks.
   c. Dinosaurs only lived on land.
   d. Dinosaur fossils first appeared in rocks of the Paleozoic Era.

10. According to Earth’s geologic history, when did many land and marine organisms become extinct?
    a. before the appearance of terrestrial plants
    b. after the appearance of human
    c. before the appearance of dinosaurs
    d. after the appearance of birds

11. Which fossil has not been found in the New York State rock record?
    a. Silurian eurypterids
    b. Triassic dinosaur footprints
    c. Permian trilobites
    d. Pleistocene mastodont bones

12. The existence of which group of organisms spans the shortest geologic time?
    a. birds
    b. dinosaurs
    c. humans
    d. placoderm fish

13. Most of the oceanic oxygen that began to enter Earth’s atmosphere in the early Proterozoic Era
    was probably produced by
    a. formation of silicate rocks
    b. photosynthesis by cyanobacteria
    c. impact events on Earth’s surface
    d. outgassing from volcanoes

14. During which geologic period did plants and animals first appear in land environments?
    a. Cambrian
    b. Silurian
    c. Ordovician
    d. Devonian