

Evidence Of Evolution (p. 283 – 287)

I. The Fossil Record

1. Define the term fossil.

Fossil – preserved or mineralized remains or imprint of an organism that lived long ago

99.9% of all organisms are extinct

2. Circle the letter of the sentence that is incorrect concerning fossils.

- a. Fossils of animals show a pattern of development from ancestors to descendants.
- ☒ b. The fossil record offers ^{most direct} ~~no~~ evidence that evolution takes place.
- c. Change over time can be seen in the fossil record.
- d. The fossil record is incomplete.

Common Ancestor
What is it for everything?

3. The Earth is about 4.5 ^{billion} million years old.

Circle One :

True

False

Fossil Problems

- ① Many organisms don't fossilize.
- ② Some fossils not well preserved
- ③ Discovering fossils is difficult

4. What is the best environment to search to find fossils?

Wet-lowlands, Slow-moving Streams, Lakes, Shallow Seas, Volcanoes

5. Which type of organism has a better chance of fossilizing?

Circle One :

Soft-bodied

Hard-bodied

Preservation

Ice, Tree Sap, Peat Bogs, Tar pits, Quickrand

6. Define the term paleontologist.

Paleontologist – scientists who study fossils

Whole Evolution

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7. How do paleontologists develop an orderly picture of an organism's evolution?

Radiometric dating of rocks + minerals in fossil sediment

II. Anatomy & Development

Carbon-14 (5730 yrs) (Igneous rocks)
Rubidium-87 (49 my)
Potassium-40 (1.2 by)
Uranium-238 (4.5 by)

1. Define the term homologous structures.

Homologous Structures – structures of different organisms that are derived from a common ancestor

2. List three examples of homologous structures in mammals.

1. Forelimbs
2. Muscles
3. Nerves
4. Blood Circulation
5. Organs

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3. Define the term vestigial structures.

Vestigial Structures – structures that are reduced in size or have no use (possibly useful by an ancestor)

4. List three examples of vestigial structures in animals.

1. Whale Hindlimbs 2. Appendix 3. Python Leg Bones
 4. Wiggle Ears 5. Wisdom Teeth 6. Coccyx / Tonsils

5. How is embryology used as form of evidence supporting evolution?

All vertebrate embryos have a tail (or bud) + pharyngeal pouches
 (tail becomes limbs)
 (pharyngeal pouches become gills/throat)

III. Biological Molecules

1. Which type of ancestor exhibits greater amino acid sequence differences?

Circle One :

More Recent

More Distant

Cytochrome c
 - found in many organisms

2. Are protein patterns always a reliable measure of evolutionary trends?

Circle One :

Yes

No

(Rates of evolution of proteins vary)

3. What is used as a valid measure of genetic evolution in a species?

Evolutionary histories based on DNA sequences

4. List three chemical compounds found in nearly all organisms. (Not in the book.)

1. ATP 2. DNA 3. RNA

IV. Geographic Distribution Of Living Things (Not in the book.)

1. Circle the letter of the way Darwin explained the distribution of finch species on the Galapagos Islands.

- a. They had descended with modification from a common mainland ancestor.
 b. They had descended with modification from several different mainland ancestors.
 c. They had remained unchanged since arriving on the Galapagos from the mainland.
 d. They had become more similar to one another after arriving on the Galapagos.

2. How did Darwin explain the existence of similar but unrelated species?

- Darwin thought that such species evolved features in common because they were exposed to similar pressures of natural selection.

