

Evidence Of Evolution Worksheet Questions and Answers PDF

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Part 1: Building a Foundation

Which of the following best describes a fossil?

Hint: Think about what a fossil represents in terms of past life.

- A) A living organism found in sedimentary rock
- B) A preserved remain or impression of an organism from the past ✓
- C) A rock formation that contains minerals
- D) A type of plant that existed millions of years ago

■ A fossil is a preserved remain or impression of an organism from the past.

Which of the following are examples of homologous structures?

Hint: Consider structures that have similar origins but may serve different functions.

- A) The wings of a bat and the arms of a human ✓
- B) The wings of a butterfly and the wings of a bird
- C) The flippers of a whale and the legs of a horse ✓
- D) The eyes of a human and the eyes of a squid

■ Homologous structures are those that share a common ancestry, even if they serve different functions.

Explain what is meant by 'transitional fossils' and provide an example.

Hint: Think about fossils that show intermediary forms between different groups.

Transitional fossils are those that exhibit traits common to both an ancestral group and its derived descendant group. An example is Archaeopteryx, which shows features of both dinosaurs and birds.

List two key differences between homologous and analogous structures.

Hint: Consider their origins and functions.

1. Difference 1

Homologous structures come from a common ancestor.

2. Difference 2

Analogous structures arise independently.

Homologous structures arise from a common ancestor, while analogous structures arise independently in different lineages. Additionally, homologous structures may serve different functions, whereas analogous structures serve similar functions.

Part 2: Comprehension and Application

What does the presence of vestigial structures in an organism suggest?

Hint: Think about the evolutionary history of the organism.

- A) The organism has recently evolved a new function
- B) The organism has no evolutionary history

- C) The organism shares a common ancestry with species that have functional versions of these structures ✓
- D) The organism is unrelated to any other species

The presence of vestigial structures suggests that the organism shares a common ancestry with species that have functional versions of these structures.

Which of the following statements about the fossil record are true?

Hint: Consider what the fossil record represents in terms of species and time.

- A) It provides evidence of the chronological order of species ✓
- B) It shows that all species appeared at the same time
- C) It includes only complete specimens of organisms
- D) It contains gaps due to the rarity of fossilization ✓

The fossil record provides evidence of the chronological order of species and contains gaps due to the rarity of fossilization.

Describe how stratigraphy is used to determine the age of fossils.

Hint: Think about the layers of rock and their significance.

Stratigraphy is used to determine the age of fossils by analyzing the layers of rock in which they are found, with deeper layers typically representing older geological periods.

If a new fossil is discovered in a deeper layer of rock than previously known fossils, what can be inferred about its age?

Hint: Consider the relationship between rock layers and age.

- A) It is likely younger than the fossils found in shallower layers
- B) It is likely older than the fossils found in shallower layers ✓
- C) It is the same age as the fossils found in shallower layers
- D) Its age cannot be determined from its position

It can be inferred that the new fossil is likely older than the fossils found in shallower layers.

Part 3: Analysis, Evaluation, and Creation

Which of the following best explains why analogous structures do not indicate common ancestry?

Hint: Think about the origins of these structures.

- A) They are found in organisms that live in the same environment
- B) They have different embryonic origins ✓
- C) They perform different functions
- D) They are always identical in form

Analogous structures do not indicate common ancestry because they have different embryonic origins.

In what ways can the study of embryology provide evidence for evolution?

Hint: Consider the similarities observed in embryonic development.

- A) By showing similar stages of development in different species ✓
- B) By identifying unique developmental pathways in each species
- C) By revealing vestigial structures during development ✓
- D) By demonstrating that all embryos look identical

The study of embryology provides evidence for evolution by showing similar stages of development in different species and revealing vestigial structures during development.

Analyze the significance of the Archaeopteryx fossil in understanding the evolution of birds.

Hint: Think about the features that link birds to dinosaurs.

The Archaeopteryx fossil is significant because it exhibits both avian and reptilian features, providing crucial evidence for the evolutionary link between birds and dinosaurs.

Which of the following scenarios would most strongly support the theory of evolution by natural selection?

Hint: Consider the scenarios that demonstrate adaptation over time.

- A) A species of bird developing a new feather color due to genetic mutation
- B) A population of insects becoming resistant to a pesticide over several generations ✓**
- C) A mammal species suddenly appearing in the fossil record without any precursors
- D) A plant species growing taller in response to increased sunlight

A population of insects becoming resistant to a pesticide over several generations would most strongly support the theory of evolution by natural selection.

Evaluate the role of natural selection in shaping the adaptations of a species of your choice. Discuss how these adaptations have allowed the species to thrive in its environment.

Hint: Think about specific adaptations and their benefits.

Natural selection plays a crucial role in shaping adaptations that enhance survival and reproduction in a species, allowing it to thrive in its specific environment.

Propose two hypothetical scenarios where environmental changes could lead to evolutionary adaptations in a species. Describe the potential adaptations.

Hint: Consider different types of environmental changes.

1. Scenario 1

A species of fish adapting to warmer waters by developing a heat-resistant enzyme.

2. Scenario 2

A species of bird developing a shorter beak to access new food sources due to changes in available flora.

Environmental changes can lead to adaptations such as changes in coloration for camouflage or alterations in reproductive strategies to cope with new conditions.