Evidence Across Time

Compare sources that explain how inherited traits change in populations.

S7L5 "Obtain, evaluate, and communicate information from multiple sources to explain the theory of evolution of living organisms through inherited characteristics."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline one piece of evidence in the finch source and one piece of evidence in the fossil or DNA source. Circle the conclusion in paragraph 3 that both kinds of evidence support.

Following the Evidence

1. Scientists explain evolution as change in inherited traits in a population over many generations. Individuals in a population have variations, such as different beak depths. Some variations can be passed from parents to offspring through genes. When a trait helps organisms survive and reproduce in a particular environment, organisms with that trait may leave more offspring. Over time, the helpful inherited trait can become more common. This population-level change is called natural selection. It does not mean that one individual changes its genes because it needs to.

2. One source of evidence comes from field observations of medium ground finches on Daphne Major, an island in the Galápagos. After a drought, many small, soft seeds were scarce, while larger, hard seeds remained. Researchers Peter and Rosemary Grant measured surviving finches and later measured their offspring. Birds with deeper beaks were more likely to survive the drought. In the next generation, the average beak depth was greater. This source connects an environmental change, survival, reproduction, and an inherited characteristic.

3. A second source is fossil evidence. Fossils show that modern whales share features with land mammals, including bones in their flippers that match the pattern of limb bones in other mammals. DNA comparisons provide another source. They show that whales and hippos share a more recent common ancestor than whales and horses do. Fossil and DNA evidence are different kinds of sources, yet both support the idea that species change over long periods and share ancestors. Scientists evaluate each source for patterns and compare conclusions.

2 ANSWER WITH EVIDENCE

Use the passage

1. What type of source did the Grants use to study finches, and what did they measure?

2. Use evidence from the finch source to explain why deeper beaks became more common after the drought.

3. Compare the finch source with the fossil and DNA sources. What evidence does each source provide, and what conclusion do they support together?

4. Why does comparing fossil evidence with DNA evidence make a scientific explanation of evolution stronger?

3 YOUR TURN

Your own words

Write exactly three sentences that explain evolution using two sources from the passage. State a claim, use one detail from the finch observations, and use one detail from either the fossil or DNA source.

ANSWER KEY

Evidence Across Time

GRADE 7 · S7L5

PART 1 · READ AND MARK

Underline one piece of evidence in the finch source and one piece of evidence in the fossil or DNA source. Circle the conclusion in paragraph 3 that both kinds of evidence support. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What type of source did the Grants use to study finches, and what did they measure?	**They used field observations. They measured surviving finches and later measured their offspring.**
2	Use evidence from the finch source to explain why deeper beaks became more common after the drought.	**After the drought, small soft seeds were scarce and larger hard seeds remained. Finches with deeper beaks were more likely to survive, and the next generation had a greater average beak depth.**
3	Compare the finch source with the fossil and DNA sources. What evidence does each source provide, and what conclusion do they support together?	**The finch source shows a change in beak depth across generations after a drought. Fossils show shared body features, and DNA shows relatedness among species. Together, they support that species change over time and share ancestors.**
4	Why does comparing fossil evidence with DNA evidence make a scientific explanation of evolution stronger?	**They are different kinds of evidence, and both support the same conclusion about species changing over time and sharing ancestors.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Evolution can change the inherited traits of populations over generations. In the finch observations, birds with deeper beaks were more likely to survive the drought, and the next generation had a greater average beak depth. DNA comparisons show that whales and hippos share a more recent common ancestor, supporting change and shared ancestry.

Accept equivalent explanations that accurately use evidence from two different sources and connect that evidence to inherited traits, population change, or shared ancestry. For the open response, require exactly three sentences with a claim and accurate evidence from the specified sources.