

Evolution and Chemical Reactions Quiz

Science · Answer Key · 13 Questions

1. A population of birds becomes separated when a river forms between two areas. Over many generations, the two groups develop different characteristics. Which concept best explains how the separation can contribute to evolution?

- A) Heredity
- B) Isolation**
- C) Selection
- D) Variation

2. Which line of evidence provides preserved remains or traces of organisms from the past?

- A) Biography
- B) Comparative morphology
- C) Embryology
- D) Fossils**

3. Why is variation important in the process of evolution?

- A) It makes all organisms identical.
- B) It causes all organisms to develop the same traits.
- C) It prevents organisms from adapting to their environment.
- D) It provides differences that may help organisms survive and reproduce.**

4. What is the term for the differences in traits among individuals of the same species?

- A) Adaptation
- B) Heredity
- C) Isolation
- D) Variation**

5. Which term refers to the passing of traits from parents to their offspring?

- A) Heredity**
- B) Isolation
- C) Selection
- D) Variation

6. Maria mixed vinegar and baking soda to clean a sink. She observed vigorous bubbling. What does the bubbling most likely indicate?

A) A gas is being produced

- B) The liquid is boiling.
- C) The mixture is freezing
- D) Water is evaporating

7. A farmer heats limestone (CaCO_3), causing it to break down into calcium oxide (CaO) and carbon dioxide (CO_2). Why is this reaction classified as a decomposition reaction?

A) One compound breaks down into two or more simpler substances.

- B) One element replaces another element in a compound.
- C) Two compounds exchange their ions.
- D) Two substances combine to form one product.

8. A farmer wants to recover copper from a copper sulfate solution. He places a strip of zinc into the solution: $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$. Based on the pattern of the reaction, which type of reaction should he identify it as?

- A) Combination
- B) Decomposition
- C) Double replacement

D) Single replacement

9. A student classified the following reactions. Which classification should you evaluate as incorrect?

- A) $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$ - Combination
- B) $2\text{KClO}_3 \rightarrow 2\text{KCl} + 3\text{O}_2$ - Decomposition
- C) $\text{Fe} + \text{CuSO}_4 \rightarrow \text{FeSO}_4 + \text{Cu}$ - Double Replacement**
- D) $\text{AgNO}_3 + \text{NaCl} \rightarrow \text{AgCl} + \text{NaNO}_3$ - Double Replacement

10. Which of the following is the correct chemical equation for the word equation "Hydrogen gas reacts with oxygen gas to produce water"?

- A) $\text{H} + \text{O} \rightarrow \text{H}_2\text{O}$
- B) $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$**
- C) $\text{H}_2 + \text{O} \rightarrow \text{H}_2\text{O}_2$
- D) $\text{H}_2\text{O} \rightarrow \text{H}_2 + \text{O}_2$

11. A student wrote the equation: $\text{Fe} + \text{O}_2 \rightarrow \text{Fe}_2\text{O}_3$. To obey the Law of Conservation of Mass, the equation should be balanced as:

- A) $\text{Fe} + \text{O}_2 \rightarrow \text{Fe}_2\text{O}_3$
- B) $2\text{Fe} + \text{O}_2 \rightarrow \text{Fe}_2\text{O}_3$
- C) $4\text{Fe} + 3\text{O}_2 \rightarrow 2\text{Fe}_2\text{O}_3$**
- D) $\text{Fe} + 3\text{O}_2 \rightarrow 2\text{Fe}_2\text{O}_3$

12. Which statement best explains what happens to atoms during a chemical reaction?

- A) Atoms are destroyed and new atoms are created.
- B) Atoms disappear when new substances are formed.
- C) Atoms change into completely different elements during every chemical reaction.
- D) Atoms are rearranged to form new substances, while the total number of atoms remains the same.**

13. Plants perform photosynthesis to produce food and oxygen. Scientists use the following equation to represent the process: Which balanced equation correctly conserves all atoms?

- A) $3\text{CO}_2 + 3\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 3\text{O}_2$
- B) $4\text{CO}_2 + 4\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 4\text{O}_2$
- C) $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$**
- D) $\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2$