

Evolution and Chemical Reactions Quiz

Science · Practice Test · 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) $\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2$