

# Practice Worksheet on Chemistry and Biology

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Subject: Science

Date: 1/12/2025

## Long Answer Questions

1. Describe the reaction that occurs when magnesium ribbon burns in the presence of oxygen. Include observations, type of reaction, and energy changes.
2. Explain the process of photosynthesis, including the reactants, products, and where it takes place in the plant.
3. Describe aerobic respiration, providing the balanced word equation, where it takes place, and its significance in living organisms.
4. Define a compound. How is it different from a mixture? Give examples of compounds and explain their properties.
5. What is an element? Explain its characteristics and give examples of different types of elements (metals, non-metals, metalloids).

## Multiple Choice Questions

1. What is a compound?

- a) A mixture of two or more elements that are physically combined
- b) A pure substance made up of two or more elements chemically combined in a fixed ratio
- c) A homogeneous mixture of elements
- d) A heterogeneous mixture of elements

2. Where does respiration take place?

- a) Only in the presence of sunlight
- b) Only in the absence of sunlight
- c) In the presence or absence of sunlight
- d) Only in plant chloroplasts

3. What type of mixture is a solution?

- a) It is a heterogeneous mixture
- b) It is a pure element
- c) It is a homogeneous mixture
- d) It is a compound

4. What are the three main components of fertilizers?

- a) Nitrogen, Phosphorus, and Carbon
- b) Nitrogen, Phosphorus, and Potassium
- c) Oxygen, Hydrogen, and Carbon
- d) Potassium, Calcium, and Magnesium

5. What type of reaction is the combination of two elements to form a compound?

- a) Decomposition
- b) Displacement
- c) Synthesis
- d) Neutralization

# Answer Key

## Long Answer Questions - Expected Responses

1. Describe the reaction that occurs when magnesium ribbon burns in the presence of oxygen. Include observations, type of reaction, and energy changes.

Expected Answer: Magnesium is a reactive metal that burns brightly in oxygen, producing magnesium oxide, a white powder. This reaction is a chemical change and releases heat and light.

2. Explain the process of photosynthesis, including the reactants, products, and where it takes place in the plant.

Expected Answer: Photosynthesis is the process where plants convert light, water, and carbon dioxide into glucose and oxygen. It occurs in chloroplasts and is essential for plant growth.

3. Describe aerobic respiration, providing the balanced word equation, where it takes place, and its significance in living organisms.

Expected Answer: In aerobic respiration, glucose is broken down completely in the presence of oxygen to produce large amounts of energy (ATP), carbon dioxide and water. This happens in the mitochondria.

4. Define a compound. How is it different from a mixture? Give examples of compounds and explain their properties.

Expected Answer: A compound is a pure substance formed when two or more elements combine chemically in a fixed ratio. Unlike mixtures, compounds have distinct properties.

5. What is an element? Explain its characteristics and give examples of different types of elements (metals, non-metals, metalloids).

Expected Answer: Elements are pure substances that cannot be chemically broken

down into simpler substances. They are fundamental building blocks of all matter and are listed on the periodic table.

## Multiple Choice Questions – Correct Answers

1. What is a compound?

Correct Answer: A pure substance made up of two or more elements chemically combined in a fixed ratio

2. Where does respiration take place?

Correct Answer: In the presence or absence of sunlight

3. What type of mixture is a solution?

Correct Answer: It is a homogeneous mixture

4. What are the three main components of fertilizers?

Correct Answer: Nitrogen, Phosphorus, and Potassium

5. What type of reaction is the combination of two elements to form a compound?

Correct Answer: Synthesis