



# Practice Worksheet on Chemistry and Biology

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## Long Answer Questions

1. Describe the structure of atoms and the subatomic particles that compose them.
2. Explain how the periodic table is organized and how patterns in properties can be used to understand elements.
3. Describe the three main types of chemical reactions: synthesis, decomposition, and single displacement. Provide an example for each.
4. Explain the processes of photosynthesis and respiration, including their reactants and products.
5. Describe the structure and function of stomata in plants and their role in gas exchange.

## Multiple Choice Questions

1. What subatomic particles make up an atom?

- a) Only protons
- b) Only electrons
- c) Protons, neutrons, and electrons
- d) Only neutrons

2. Elements are primarily organized on the periodic table by what?

- a) Mass
- b) Color
- c) Atomic number
- d) Density

3. Which of the following represents a decomposition reaction?

- a)  $A + B \rightarrow C$
- b)  $AB \rightarrow A + B$
- c)  $A + BC \rightarrow AC + B$
- d) All of the above

4. What are the reactants of photosynthesis?

- a) Oxygen and glucose
- b) Carbon dioxide and water
- c) Sunlight and water
- d) Glucose and oxygen

5. What structures on a leaf regulate gas exchange?

- a) Chloroplasts
- b) Stomata
- c) Xylem
- d) Phloem

# Answer Key

## Long Answer Questions - Expected Responses

1. Describe the structure of atoms and the subatomic particles that compose them.

Expected Answer: Atoms are the basic building blocks of matter; they consist of subatomic particles like protons, neutrons, and electrons.

2. Explain how the periodic table is organized and how patterns in properties can be used to understand elements.

Expected Answer: The periodic table organizes elements based on their atomic number and recurring chemical properties, revealing patterns and trends.

3. Describe the three main types of chemical reactions: synthesis, decomposition, and single displacement. Provide an example for each.

Expected Answer: Chemical reactions involve the rearrangement of atoms, forming new substances; Synthesis involves combining elements or compounds, decomposition breaks them down, and single displacement replaces an element in a compound.

4. Explain the processes of photosynthesis and respiration, including their reactants and products.

Expected Answer: Photosynthesis converts light energy into chemical energy (glucose) using carbon dioxide and water; respiration breaks down glucose to release energy for the organism's activities.

5. Describe the structure and function of stomata in plants and their role in gas exchange.

Expected Answer: Stomata regulate gas exchange in plants, allowing for the intake of carbon dioxide and the release of oxygen during photosynthesis, and vice versa for respiration.

## Multiple Choice Questions – Correct Answers

1. What subatomic particles make up an atom?

Correct Answer: Protons, neutrons, and electrons

2. Elements are primarily organized on the periodic table by what?

Correct Answer: Atomic number

3. Which of the following represents a decomposition reaction?

Correct Answer:  $AB \rightarrow A + B$

4. What are the reactants of photosynthesis?

Correct Answer: Carbon dioxide and water

5. What structures on a leaf regulate gas exchange?

Correct Answer: Stomata