



Practice Worksheet on Cells

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Subject: Biology

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Long Answer Questions

1. Explain the fundamental role of a cell in living organisms.
2. Who introduced the term "cell" and when?
3. Describe the difference between eukaryotic and prokaryotic cells.
4. Discuss the range of cell sizes found in nature.
5. Estimate the number of cells in an adult human body and explain the significance of cellular diversity.
6. State the key principles of the cell theory.
7. What is protoplasm and what components constitute it?

8. Explain why viruses are not considered cells.

Multiple Choice Questions

1. Who first used the term 'cell' to describe the basic unit of life?

- a) Robert Hooke
- b) Anton van Leeuwenhoek
- c) Louis Pasteur
- d) Gregor Mendel

2. Where are cells found?

- a) Only in plants
- b) Only in animals
- c) In both plants and animals
- d) Only in bacteria

3. Which structure controls what enters and leaves a cell?

- a) Cell membrane
- b) Cell wall
- c) Nucleus
- d) Cytoplasm

4. What unit is commonly used to measure the size of a typical cell?

- a) Micrometers
- b) Millimeters
- c) Nanometers
- d) Kilometers

5. How do new cells form?

- a) Photosynthesis
- b) Cell division
- c) Diffusion
- d) Osmosis

6. Who is credited with first observing cells under a microscope?

- a) Anton van Leeuwenhoek
- b) Robert Hooke
- c) Matthias Schleiden
- d) Theodor Schwann

7. Why are viruses not considered to be living organisms?

- a) They lack a cell membrane
- b) They lack the ability for independent life
- c) They are too small to see
- d) They are only found in plants

8. Which cell structure contains the cell's genetic material?

- a) Mitochondria
- b) Ribosomes
- c) Nucleus
- d) Chloroplasts

Answer Key

Long Answer Questions - Expected Responses

1. Explain the fundamental role of a cell in living organisms.

Expected Answer: The cell is the basic structural and functional unit of life, forming the foundation of all living organisms except viruses.

2. Who introduced the term "cell" and when?

Expected Answer: Robert Hooke, in 1665, is credited with introducing the term "cell" into scientific literature, marking a pivotal moment in biology.

3. Describe the difference between eukaryotic and prokaryotic cells.

Expected Answer: Prokaryotic cells lack a nucleus and other membrane-bound organelles, differing fundamentally from the more complex eukaryotic cells.

4. Discuss the range of cell sizes found in nature.

Expected Answer: The cell's size varies greatly, ranging from 0.1-0.25 micrometers in some bacteria to 155 millimeters in an ostrich egg, highlighting the diversity in life.

5. Estimate the number of cells in an adult human body and explain the significance of cellular diversity.

Expected Answer: A human body comprises about 100 trillion cells, each performing specific functions to maintain the overall health of the organism.

6. State the key principles of the cell theory.

Expected Answer: The cell theory postulates that all living things are composed of cells, cells are the basic units of structure and function in living things, and new cells are produced from existing cells.

7. What is protoplasm and what components constitute it?

Expected Answer: The cytoplasm and nucleus, both enclosed by biological membranes, collectively form the protoplasm, the living matter of a cell.

8. Explain why viruses are not considered cells.

Expected Answer: Viruses are acellular entities and do not fit the conventional definition of a cell, as they lack the ability for independent life and reproduce only within host cells.

Multiple Choice Questions - Correct Answers

1. Who first used the term 'cell' to describe the basic unit of life?

Correct Answer: Robert Hooke

2. Where are cells found?

Correct Answer: In both plants and animals

3. Which structure controls what enters and leaves a cell?

Correct Answer: Cell membrane

4. What unit is commonly used to measure the size of a typical cell?

Correct Answer: Millimeters

5. How do new cells form?

Correct Answer: Cell division

6. Who is credited with first observing cells under a microscope?

Correct Answer: Robert Hooke

7. Why are viruses not considered to be living organisms?

Correct Answer: They lack the ability for independent life

8. Which cell structure contains the cell's genetic material?

Correct Answer: Nucleus