

## Cell Structure And Function Worksheet Answer Key PDF

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### Part 1: Building a Foundation

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**Which of the following is NOT a part of the cell theory?**

undefined. a) All living organisms are composed of one or more cells.

**undefined. b) Cells can spontaneously generate from non-living matter. ✓**

undefined. c) The cell is the basic unit of life.

undefined. d) All cells arise from pre-existing cells.

The correct answer is b) Cells can spontaneously generate from non-living matter, as this is not part of the cell theory.

**Which of the following are characteristics of prokaryotic cells?**

**undefined. a) Lack of nucleus ✓**

undefined. b) Presence of membrane-bound organelles

**undefined. c) Simpler structure ✓**

**undefined. d) Found in bacteria and archaea ✓**

The correct answers are a) Lack of nucleus, c) Simpler structure, and d) Found in bacteria and archaea.

**Describe the primary function of the nucleus in a eukaryotic cell.**

**The nucleus primarily functions to store and protect the cell's genetic material (DNA) and coordinate activities such as growth, metabolism, and reproduction.**

**List two differences between plant and animal cells.**

1. Difference 1

**Plant cells have a cell wall.**

2. Difference 2

**Plant cells contain chloroplasts.**

Plant cells have a cell wall and chloroplasts, while animal cells do not.

## Part 2: Comprehension and Application

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**What is the primary role of ribosomes in the cell?**

undefined. a) Energy production

**undefined. b) Protein synthesis ✓**

undefined. c) Lipid synthesis

undefined. d) DNA replication

The primary role of ribosomes is b) Protein synthesis.

**Which of the following organelles are involved in the process of protein modification and packaging?**

**undefined. a) Golgi apparatus ✓**

**undefined. b) Rough endoplasmic reticulum ✓**

undefined. c) Lysosomes

undefined. d) Mitochondria

The correct answers are a) Golgi apparatus and b) Rough endoplasmic reticulum.

**Explain how the structure of the phospholipid bilayer contributes to its function as a cell membrane.**

**The phospholipid bilayer's structure allows it to be selectively permeable, enabling the cell to maintain homeostasis by controlling what enters and exits.**

**If a cell is placed in a hypertonic solution, what is likely to happen to the cell?**

undefined. a) It will swell and burst.

undefined. b) It will remain unchanged.

**undefined. c) It will shrink. ✓**

undefined. d) It will divide.

The correct answer is c) It will shrink.

**In which scenarios would active transport be necessary for a cell?**

**undefined. a) Moving substances against their concentration gradient ✓**

undefined. b) Facilitating osmosis

undefined. c) Transporting large molecules

**undefined. d) Maintaining ion balance ✓**

Active transport is necessary for a) Moving substances against their concentration gradient and d) Maintaining ion balance.

**Describe a real-world example where understanding cell membrane transport is crucial, such as in medical treatments or biotechnology.**

**Understanding cell membrane transport is crucial in drug delivery systems, where the effectiveness of medications depends on their ability to cross cell membranes.**

### **Part 3: Analysis, Evaluation, and Creation**

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**Which organelle would be most affected if a cell could no longer synthesize lipids?**

undefined. a) Nucleus

**undefined. b) Smooth endoplasmic reticulum ✓**

undefined. c) Ribosomes

undefined. d) Golgi apparatus

The correct answer is b) Smooth endoplasmic reticulum.

**Analyze the relationship between the cytoskeleton and cell movement. Which components are involved?**

**undefined. a) Microtubules ✓**

**undefined. b) Actin filaments ✓**

**undefined. c) Intermediate filaments ✓**

undefined. d) Lysosomes

The components involved are a) Microtubules, b) Actin filaments, and c) Intermediate filaments.

**Compare and contrast the processes of photosynthesis and cellular respiration in terms of energy conversion and organelles involved.**

**Photosynthesis converts light energy into chemical energy in chloroplasts, while cellular respiration converts chemical energy into usable energy in mitochondria.**

**Which of the following best evaluates the importance of lysosomes in maintaining cellular health?**

undefined. a) They provide structural support.

**undefined. b) They digest and recycle cellular waste. ✓**

undefined. c) They synthesize proteins.

undefined. d) They transport substances across the cell membrane.

The correct answer is b) They digest and recycle cellular waste.

**Evaluate the impact of a malfunctioning Golgi apparatus on cellular function. Which processes would be affected?**

**undefined. a) Protein modification ✓**

undefined. b) Lipid synthesis

undefined. c) Waste digestion

**undefined. d) Secretion of cellular products ✓**

The processes affected would be a) Protein modification and d) Secretion of cellular products.

**Design an experiment to test the effects of a new drug on the permeability of the cell membrane. Include your hypothesis, method, and expected results.**

**The experiment could involve treating cells with the drug and measuring changes in permeability using a dye exclusion test.**