

## **Cell Structure And Function Worksheet**

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Part 1: Building a Foundation
Which of the following is NOT a part of the cell theory?
Hint: Think about the fundamental principles of cell theory.
<ul> <li>a) All living organisms are composed of one or more cells.</li> <li>b) Cells can spontaneously generate from non-living matter.</li> <li>c) The cell is the basic unit of life.</li> <li>d) All cells arise from pre-existing cells.</li> </ul>
Which of the following are characteristics of prokaryotic cells?
Hint: Consider the structural features that define prokaryotic cells.
a) Lack of nucleus
b) Presence of membrane-bound organelles
<ul><li>□ c) Simpler structure</li><li>□ d) Found in bacteria and archaea</li></ul>
Describe the primary function of the nucleus in a eukaryotic cell.
Hint: Think about the role of the nucleus in genetic material management.

List two differences between plant and animal cells.



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Hint: Consider the unique structures found in each cell type.
1. Difference 1
2. Difference 2
2. Difference 2
Doub O. Communication and Application
Part 2: Comprehension and Application
What is the primary role of ribosomes in the cell?
Hint: Think about the process of protein synthesis.
a) Energy production
O b) Protein synthesis
○ c) Lipid synthesis
Od) DNA replication
Which of the following organelles are involved in the process of protein modification and packaging?
Hint: Consider the organelles that play a role in processing proteins.
a) Golgi apparatus
b) Rough endoplasmic reticulum
c) Lysosomes
d) Mitochondria
Explain how the structure of the phospholipid bilayer contributes to its function as a cell membrane.
Hint: Think about the properties of phospholipids and their arrangement.

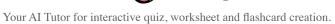
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If a cell is placed in a hypertonic solution, what is likely to happen to the cell?
Hint: Consider the effects of solute concentration on cell volume.
a) It will swell and burst.
O b) It will remain unchanged.
○ c) It will shrink.
Od) It will divide.
In which scenarios would active transport be necessary for a cell?
Hint: Think about the movement of substances across the cell membrane.
a) Moving substances against their concentration gradient
b) Facilitating osmosis
c) Transportating large molecules
d) Maintaining ion balance
Describe a real-world example where understanding cell membrane transport is crucial, such as in medical treatments or biotechnology.
Hint: Consider how cell transport mechanisms are applied in various fields.
Part 3: Analysis, Evaluation, and Creation
Which organelle would be most affected if a cell could no longer synthesize lipids?
Hint: Think about the organelles involved in lipid production.
○ a) Nucleus
Ob) Smooth endoplasmic reticulum
c) Ribosomes
○ d) Golgi apparatus

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Analyze the relationship between the cytoskeleton and cell movement. Which components are involved?		
Hint: Consider the structures that provide support and enable movement.		
a) Microtuules		
☐ b) Actin filaments		
c) Intermediate filaments		
☐ d) Lysosomes		
Compare and contrast the processes of photosynthesis and cellular respiration in terms of energy conversion and organelles involved.		
Hint: Think about the inputs and outputs of each process.		
Which of the following best evaluates the importance of lysosomes in maintaining cellular health?  Hint: Consider the functions of lysosomes in the cell.		
<ul><li>a) They provide structural support.</li><li>b) They digest and recycle cellular waste.</li></ul>		
c) They synthesize proteins.		
d) They transport substances across the cell membrane.		
Evaluate the impact of a malfunction ing Golgi apparatus on cellular function. Which processes would be affected?		
Hint: Think about the role of the Golgi apparatus in processing and shipping proteins.		
a) Protein modification		
☐ b) Lipid synthesis		
☐ c) Waste digestion		
d) Secretion of cellular products		

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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.	
Hint: Consider how you would structure a scientific experiment.	
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