

Functions Of Cell Organelles Worksheet

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Part 1: Building a Foundation

Which organelle is known as the powerhouse of the cell?

Hint: Think about where energy is produced in the cell.

- A) Nucleus
- B) Ribosome
- C) Mitochondria
- D) Golgi Apparatus

Which of the following organelles are involved in protein synthesis? (Select all that apply)

Hint: Consider the organelles that are directly related to making proteins.

- A) Ribosomes
- B) Smooth Endoplasmic Reticulum
- C) Rough Endoplasmic Reticulum
- D) Golgi Apparatus

Explain the primary function of the nucleus in a cell.

Hint: Consider the role of the nucleus in genetic information.

List the two main types of Endoplasmic Reticulum and their primary functions.

Hint: Think about the differences between the two types of ER.

1. What is the first type of Endoplasmic Reticulum?

2. What is the primary function of Rough Endoplasmic Reticulum?

3. What is the second type of Endoplasmic Reticulum?

4. What is the primary function of Smooth Endoplasmic Reticulum?

What is the primary function of lysosomes?

Hint: Consider what lysosomes do with waste materials.

- A) Energy production
- B) Protein synthesis
- C) Digestion of macromolecules
- D) Photosynthesis

Part 2: Understanding and Interpretation

Which organelle is primarily responsible for modifying and packaging proteins?

Hint: Think about the organelle that processes proteins after they are made.

- A) Nucleus
- B) Golgi Apparatus
- C) Lysosome
- D) Chloroplast

Which of the following statements about chloroplasts are true? (Select all that apply)

Hint: Consider the functions and characteristics of chloroplasts.

- A) They are found in animal cells.
- B) They contain chlorophyll.
- C) They conduct photosynthesis.

- D) They have their own DNA.

Describe how the structure of the cell membrane contributes to its function as a selective barrier.

Hint: Think about the components of the cell membrane.

Part 3: Application and Analysis

A cell needs to detoxify a large amount of alcohol. Which organelle would be most active in this process?

Hint: Consider which organelle is involved in detoxification.

- A) Lysosome
 B) Smooth Endoplasmic Reticulum
 C) Mitochondria
 D) Ribosome

In a plant cell, which organelles work together to maintain turgor pressure? (Select all that apply)

Hint: Think about the structures that provide support and pressure in plant cells.

- A) Cell Wall
 B) Vacuole
 C) Chloroplast
 D) Nucleus

Predict what might happen to a cell if its mitochondria were not functioning properly.

Hint: Consider the role of mitochondria in energy production.

Which of the following best explains the relationship between the Rough ER and the Golgi Apparatus?

Hint: Think about the processes that occur between these two organelles.

- A) The Rough ER packages proteins for the Golgi Apparatus.
- B) The Golgi Apparatus synthesizes proteins for the Rough ER.
- C) The Rough ER synthesizes proteins that are modified by the Golgi Apparatus.
- D) The Golgi Apparatus and Rough ER both detoxify poisons.

Analyze the following scenarios and identify which organelles are directly involved in protein transport within a cell. (Select all that apply)

Hint: Consider the organelles that play a role in moving proteins.

- A) Ribosomes
- B) Rough Endoplasmic Reticulum
- C) Golgi Apparatus
- D) Lysosomes

Analyze how the absence of a cell wall would affect a plant cell's ability to maintain its structure.

Hint: Consider the role of the cell wall in plant cells.

Part 4: Evaluation and Creation

If a cell's lysosomes burst, what would be the most likely outcome?

Hint: Think about the function of lysosomes in the cell.

- A) Increased energy production
- B) Cell digestion and death
- C) Enhanced protein synthesis
- D) Improved detoxification

Evaluate the following statements and identify which are potential consequences of a malfunctionING Golgi Apparatus. (Select all that apply)

Hint: Consider the functions of the Golgi Apparatus.

- A) Accumulation of unprocessed proteins
- B) Decreased energy production
- C) Impaired secretion of proteins
- D) Enhanced lipid synthesis

Design an experiment to test the effect of temperature on the rate of photosynthesis in chloroplasts. Include your hypothesis, variables, and a brief description of the procedure.

Hint: Think about how temperature might affect photosynthesis.