

Animal And Plant Cells Worksheet Answer Key PDF

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Part 1: Building a Foundation

What is the basic unit of life in all living organisms?

- undefined. A) Tissue
- undefined. B) Organ
- undefined. C) Cell ✓**
- undefined. D) Organism

The basic unit of life in all living organisms is the cell.

Which of the following organelles are found in both animal and plant cells?

- undefined. A) Nucleus ✓**
- undefined. B) Chloroplasts
- undefined. C) Mitochondria ✓**
- undefined. D) Cell Wall

Both animal and plant cells contain organelles such as the nucleus and mitochondria.

Describe the function of the cell membrane in animal cells.

The cell membrane controls the movement of substances in and out of the cell, providing protection and structural support.

List two organelles that are unique to plant cells and briefly describe their functions.

1. Organelles: Chloroplasts
Function: Photosynthesis
2. Organelles: Cell Wall

Function: Structural support

Chloroplasts are involved in photosynthesis, and the cell wall provides structural support.

Part 2: Understanding and Interpretation

Which organelle is known as the 'powerhouse of the cell'?

- undefined. A) Ribosome
- undefined. B) Golgi Apparatus
- undefined. C) Mitochondria ✓**
- undefined. D) Lysosome

The mitochondria are known as the powerhouse of the cell because they produce ATP, the energy currency of the cell.

What are the main functions of the Golgi apparatus?

- undefined. A) Protein synthesis
- undefined. B) Modifying proteins ✓**
- undefined. C) Packaging proteins for secretion ✓**
- undefined. D) Photosynthesis

The Golgi apparatus modifies, sorts, and packages proteins for secretion or delivery to other organelles.

Explain how the structure of the plant cell wall contributes to its function.

The plant cell wall is made of cellulose, providing rigidity and support, allowing plants to maintain their shape and resist external pressure.

Part 3: Application and Analysis

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

- undefined. A) The cell will swell.
- undefined. B) The cell will shrink. ✓**

undefined. C) The cell will remain the same.

undefined. D) The cell will burst.

In a hypertonic solution, water will move out of the plant cell, causing it to shrink.

Which processes are involved in active transport across the cell membrane?

undefined. A) Diffusion

undefined. B) Osmosis

undefined. C) Use of ATP ✓

undefined. D) Protein pumps ✓

Active transport involves processes such as the use of ATP and protein pumps to move substances against their concentration gradient.

How might the absence of chloroplasts affect an animal cell if it were present?

If chloroplasts were present in an animal cell, it would not be able to utilize them for photosynthesis, as animal cells do not perform this process.

Which of the following best explains why plant cells have a large central vacuole?

undefined. A) To store chlorophyll

undefined. B) To provide structural support ✓

undefined. C) To aid in cell division

undefined. D) To conduct photosynthesis

The large central vacuole provides structural support and stores nutrients and waste products.

Analyze the differences between rough and smooth endoplasmic reticulum. Which statements are true?

undefined. A) Rough ER has ribosomes on its surface. ✓

undefined. B) Smooth ER is involved in protein synthesis.

undefined. C) Rough ER is involved in lipid synthesis.

undefined. D) Smooth ER is involved in detoxification. ✓

Rough ER has ribosomes on its surface and is involved in protein synthesis, while smooth ER is involved in lipid synthesis and detoxification.

Compare and contrast the processes of photosynthesis and cellular respiration in terms of energy transformation.

Photosynthesis captures energy from sunlight to produce glucose, while cellular respiration converts glucose into usable energy (ATP) for the cell.

Part 4: Evaluation and Creation

Which scenario would most likely result in a plant cell losing its turgor pressure?

undefined. A) Being placed in a hypotonic solution

undefined. B) Being placed in an isotonic solution

undefined. C) Being placed in a hypertonic solution ✓

undefined. D) Being exposed to sunlight

A plant cell would lose its turgor pressure when placed in a hypertonic solution, causing water to leave the cell.

Evaluate the impact of a malfunction in the Golgi apparatus on a cell. Which of the following could occur?

undefined. A) Accumulation of unprocessed proteins ✓

undefined. B) Disruption in protein secretion ✓

undefined. C) Increased energy production

undefined. D) Impaired cell membrane repair

A malfunction in the Golgi apparatus could lead to the accumulation of unprocessed proteins and disruption in protein secretion.

Design an experiment to test the effects of light intensity on the rate of photosynthesis in plant cells. Describe your hypothesis, variables, and method.

The experiment should include a hypothesis about the relationship between light intensity and photosynthesis, with clear variables and a method for measurement.