Flashcards Should Be PDF

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What is the basic unit of life?
The cell is the basic unit of life.

Why is photosynthesis important for plants?
Photosynthesis allows plants to convert sunlight into chemical energy, producing oxygen and glucose.

How does DNA differ from RNA?
DNA contains the genetic blueprint for life, is double-stranded, and has thymine, while RNA is single-stranded and has uracil.

Provide an example of a eukaryotic cell.
An example of a eukaryotic cell is a human cell.

What are the components of the cell membrane?
The cell membrane is composed of a phospholipid bilayer with embedded proteins.

Critique the effectiveness of mitosis in cell division.
mitosis is effective for growth and repair as it produces two identical daughter cells, maintaining genetic consistency.

Design a simple experiment to demonstrate osmosis.
Place a potato slice in saltwater and another in freshwater; observe the changes in size due to water movement.

Define homeostasis.
Homeostasis is the process by which organisms maintain a stable internal environment.

Explain the role of enzymes in biological reactions.
Enzymes act as catalysts, speeding up chemical reactions without being consumed.

How can natural selection be applied to explain evolution?
Natural selection explains evolution as organisms with favorable traits are more likely to survive and reproduce.

What is the function of chloroplasts in plant cells?
Chloroplasts are responsible for photosynthesis, converting light energy into chemical energy.

Describe the process of cellular respiration.
Cellular respiration is the process by which cells convert glucose and oxygen into energy, carbon dioxide, and water.

What are the main stages of the cell cycle?
The main stages are interphase, mitosis, and cytokinesis.

Explain the significance of Mendel's experiments.
Mendel's experiments with pea plants laid the foundation for understanding inheritance and genetics.

How does meiosis contribute to genetic diversity?
Meiosis results in four genetically diverse gametes, promoting variation in offspring.

What is the role of ribosomes in a cell?
Ribosomes are responsible for protein synthesis.

Differentiate between prokaryotic and eukaryotic cells.
Prokaryotic cells lack a nucleus and organelles, while eukaryotic cells have a nucleus and organelles.

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What is the significance of the double helix structure of DNA?
The double helix structure allows DNA to store genetic information efficiently and replicate accurately.

Explain the process of transcription in protein synthesis.
Transcription is the process of copying a segment of DNA into RNA.

What is an ecosystem?
An ecosystem is a community of living organisms interacting with their physical environment.

How do producers and consumers differ in an ecosystem?
Producers make their own food through photosynthesis, while consumers obtain energy by eating other organisms.

Describe the water cycle.
The water cycle involves evaporation, condensation, precipitation, and collection.

What is the function of mitochondria in cells?
Mitochondria are the powerhouses of the cell, generating ATP through cellular respiration.

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Explain the concept of ecological succession.
Ecological succession is the process of change in the species structure of an ecological community over time.

How does the structure of a protein relate to its function?
The specific shape of a protein determines its function, as it allows the protein to interact with other molecules.