

Biology Midterm Review

Scientific Method and Theory

Basic Scientific Knowledge:

Hypothesis

Design of an Experiment:

Independent variable

Dependent variable

Control

Qualitative/Quantitative Data

Conclusion

Know which type of graph is appropriate for the given data (line or bar graph)

Theory

Characteristics of Living Things and Associated Vocabulary

Living things are organized

Reproduce

Species

Grow

Develop

Adapt to environment

Stimuli

Response

Evolve

Homeostasis

Ecology

Biosphere

Abiotic/Biotic Factors

The Levels of Organization

Species

Population

Community

Ecosystem

Biosphere

Habitat

Niche

Symbiotic Relationships

Mutualism

Commensalism

Parasitism

Obtaining Energy and Trophic Levels

Autotrophs

Heterotrophs

Decomposers

Food web vs Food Chain

Invasive Species

Causes and impact

Cycles in Nature:

Nitrogen

Legumes

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Nitrogen-fixing bacteria
Nitrates
% of the atmosphere that is made up of Nitrogen gas

Carbon cycle:
Cellular respiration
Photosynthesis
Biomass
Fuel Combustion
Dissolved Carbon dioxide

Water cycle
Evaporation
Transpiration
Condensation
Precipitation
Runoff
Infiltration

Phosphorous
Phosphates

Succession:
Primary
Secondary

Populations

Principles of Population Growth
J-shaped versus S-shaped
Exponential growth
Logistic growth
Carrying capacity
Immigration, Emigration, Fecundity (Fertility), Mortality

Limiting Factors that Limit Population Growth
Density independent factors
Density dependent factors

Human Population
Demography
Human population growth
Birthrate and death rate

CHEMISTRY

Atomic Structure
proton, neutron, electron
Atomic Number, Atomic Mass,
valence shell
Bonding - ionic / covalent
Functional groups - Carboxylic Acid, Alcohol, Amino, Phosphate
Biological polymers - Carbohydrates, Proteins, Lipids, Nucleic Acids

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Enzymes - type of molecule, how they function, how temperature and pH affect enzymes

Substrate

Active Site

Product

Monomers of carbohydrates, proteins, lipids, nucleic acids

Functions of each

Identification of each

Dehydration Synthesis / Hydrolysis

Cells

Two basic types of cells

Plant vs. Animal Cells

Prokaryotic vs. Eukaryotic

The Plasma Membrane

Selectively permeable

Phospholipid: What are the components? Which parts face outward/inward? Which parts are hydrophilic or hydrophobic?

Cholesterol

Proteins

Eukaryotic Cell Structure

Plasma membrane

Chloroplasts - Chlorophyll

Mitochondria

Cell Transport and Organelle Functions

Diffusion

Osmosis

Isotonic

Hypertonic

Hypotonic

Active, Facilitated, and Passive Transport

Cell Energy

Cellular Respiration

-Equation

-ATP (Structure & function)

Photosynthesis

-Equation

-Light dependent reaction (photolysis)

-Calvin cycle