

Big Idea Two Unit Exam Expectations

DEFINE homeostasis

LIST properties of water important for living organisms and the environment

LIST traits of natural history strategies that nature might select for or against

LIST functions of the human kidney

COMPARE prokaryotic cells and eukaryotic cells

OUTLINE Photosynthesis and Cellular Respiration

OUTLINE the characteristic(s) of water molecules that lead to water's unique properties

OUTLINE the role(s) and function(s) of the endomembrane system

OUTLINE the role(s) of glycoproteins and glycolipids

OUTLINE Redox reactions

OUTLINE natural history strategies

OUTLINE clonal selection theory

OUTLINE cellular differentiation

OUTLINE the natural selection

OUTLINE the global pattern(s) of species richness

DESCRIBE the role(s) of disturbances in ecosystems

DESCRIBE terrestrial mammalian temperature regulation mechanisms

DESCRIBE density dependent inhibition

IDENTIFY traits that would allow molecules to easily pass through a membrane

IDENTIFY an example of positive or negative feedback from a written scenarios

IDENTIFY an example of energy coupling reactions that is consistent with the laws of thermodynamics

IDENTIFY statements that are consistent with the competitive exclusion principle

COMPARE gross and net productivity

DISCUSS / COMPARE the tonicity of external environments found around plant cells and animal cells

DISCUSS why trophic levels are limited to only 4 or 5 levels

DISCUSS why pyramids of biomass, numbers and energy all share the same shape, broad base and narrow tops

DISCUSS why most cells are surrounded by a fluid

DISCUSS how the First Law of Thermodynamics relates to living organisms

EXPLAIN blood glucose regulation by the human body

EXPLAIN counter current exchange as a means of regulation

EXPLAIN energy coupling in cells

EXPLAIN the selective permeability of plasma membranes

EXPLAIN chemiosmotic phosphorylation

DEDUCE keystone species and dominant species from written scenarios

PREDICT the tonicity of an artificial cell based when given its initial mass, final mass and the solute concentration of the solutions involved

PREDICT the type of membrane transport being used by the cell when given the information about direction, speed and pathway of the molecule moving

PREDICT consequences of biodiversity loss towards for ecosystem

EVALUATE the logistic growth equation and PREDICT the effects of changing one variable in the equation on the effects of other variables in the equation

ANALYZE the citric acid cycle to answer a question about its reactants and products

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**\*The following terms are found throughout the exam:** potential energy, kinetic energy, cohesion, adhesion, surface tension, covalent bonding, ionic bonding, hydrogen bonding, specific heat, polar, nonpolar, hydrophobic, hydrophilic, monosaccharides, facilitated diffusion, osmosis, lipids, hypertonic, isotonic, hypotonic, dialysis bags, endocytosis, exocytosis, phagocytosis, glucagon, equilibrium, effectors, vasodilation, vasoconstriction, dilation, entropy, reduced, oxidized, ATP synthase, electron transport chain, substrate level phosphorylation, standing crop, biomagnification, protein kinases, fundamental niches, evapotranspiration, protein catabolism, urea, stem cells, V segment, J segment, macrophages, antigens, antibodies, morphogenesis, apoptosis, and differential gene expression. **Your knowledge and understanding of these terms could impact your success on the exam.**