

Study Guide for *Biology Semester I Exam, 2011*

Chapters 1-7 and 14-17

Mr. Schulz

Topics

Work hard for the Lord with all your heart. Use the gifts he has given you for the glory of God!

What is Biology?

How biologists define life (9 items)

SI Units, how to measure, reading and interpreting graphs and data tables, precision and accuracy

Details about experiments and experimental variables

Geologic Time Scale - Major Evolutionary Eras, Big Bang, and Ages of universe, earth, and life

Micro vs. Macro evolution

Radiometric dating techniques and assumptions

The 5 evidences used to justify evolution

Theories on the origin of life (spontaneous generation, primordial soup, endosymbiont theory)

Natural Selection (including adaptations and speciation)

Irreducible complexity vs. co-option

Good Science; Using science to disprove “age of universe”, “apes to man” – especially with respect to

DNA modifications, and “radiometric dating methods”. Focus only on these 3 categories.

Significance of repetitive phrases in Gen.1 (i.e. ‘reproduces according to one’s kind’, and ‘the evening and the morning’)

Name the 6 Kingdoms of organisms and the general characteristics of each kingdom

Name the 7 taxonomic categories

Use a Dichotomous Key to classify organisms

Binomial nomenclature for scientific names and reasons to use Latin

Why should man not be classed as an animal?

Food chains vs. webs, how to read them, and what happens if one organism increases or decreases in number

How biotic / abiotic factors influence land biomes and water biome zones

Abiotic factors that define land biomes

Abiotic factors that define water biomes

Logistic and Exponential population growth graphs; effects of invasive species

Threats to biodiversity, threatened, endangered, and extinct, overexploitation, biomagnification

Parts of an atom

Elements, Compounds, Molecules, and Structural Bonds (covalent, ionic, peptide, hydrogen)

Periodic Table (groups and periods) and the information they provide

Chemical stability

Biological uses of isotopes

Differences between acids and bases; pH and pH scale; buffers

Kinds of mixtures and solutions

Characteristics and functions of organic compounds (carbohydrates, enzymes, proteins, lipids, amino acids, and nucleic acids)

Balance one chemical equation; determine the number of atoms in a molecule

Qualities, properties, and characteristics of water that make it special for life

Cell Theory, fluid mosaic model

Structures, components, and functions of the plasma membrane

Cell organelles and their functions

Cell transport, how substances move into and out of cells

Biologists/Scientists

Aristotle

Linnaeus

Margulis

Pasteur

Darwin

Miller-Urey

Lyell

Hooke

Schwann

Schleiden

Virchow

van Leeuwenhoek

Vocabulary

hypothesis

theory

scientific law

independent variable

dependent variable

control

conclusion

experiment

precision

accuracy

fossil

half life

speciation

adaptation

uniformity

naturalism

relative dating

radiometric dating

theistic evolutionist

intelligent design

gradualism

punctuated equilibrium

homologous structures

vestigial structures
mimicry
camouflage
antimicrobial resistance
irreducible complexity
co-option
taxonomy
homeostasis
metabolism
prokaryote
eukaryote
binomial nomenclature
ecology
ecosystem
biome
biosphere
trophic level
autotroph
heterotroph
herbivore
carnivore
omnivore
detritivore
decomposer
biotic
abiotic
niche
habitat
mutualism
parasitism
commensalism
symbiosis
estuary
photic
aphotic
overexploitation
biomagnification
threatened
endangered
extinct
invasive species
logistic growth

exponential growth
carrying capacity
proton
neutron
electron
valence electron
molecule
polar molecule
isomer
isotope
hydrolysis
condensation
solution
solute
solvent
colloid
suspension
ion
enzyme
catalyst
saturated fatty acid
unsaturated fatty acid
starch
cellulose
nucleotide
polymer
homogeneous mixture
heterogeneous mixture
cohesion
adhesion
phospholipid
carbohydrate chain
cholesterol
membrane protein
transport protein
selective permeability

organelle
cell wall
centriole
chloroplast
cilia
cytoskeleton
endoplasmic reticulum
flagella
golgi apparatus
lysosome
mitochondria
nucleus
nucleolus
ribosome
vacuole
diffusion
dynamic equilibrium
facilitated diffusion
osmosis
isotonic solution
hypotonic solution
hypertonic solution
turgor pressure
plasmolysis
Brownian motion
active transport
passive transport
endocytosis
exocytosis