



DREYFOUS & ASSOCIATES

Course Overview

Biology

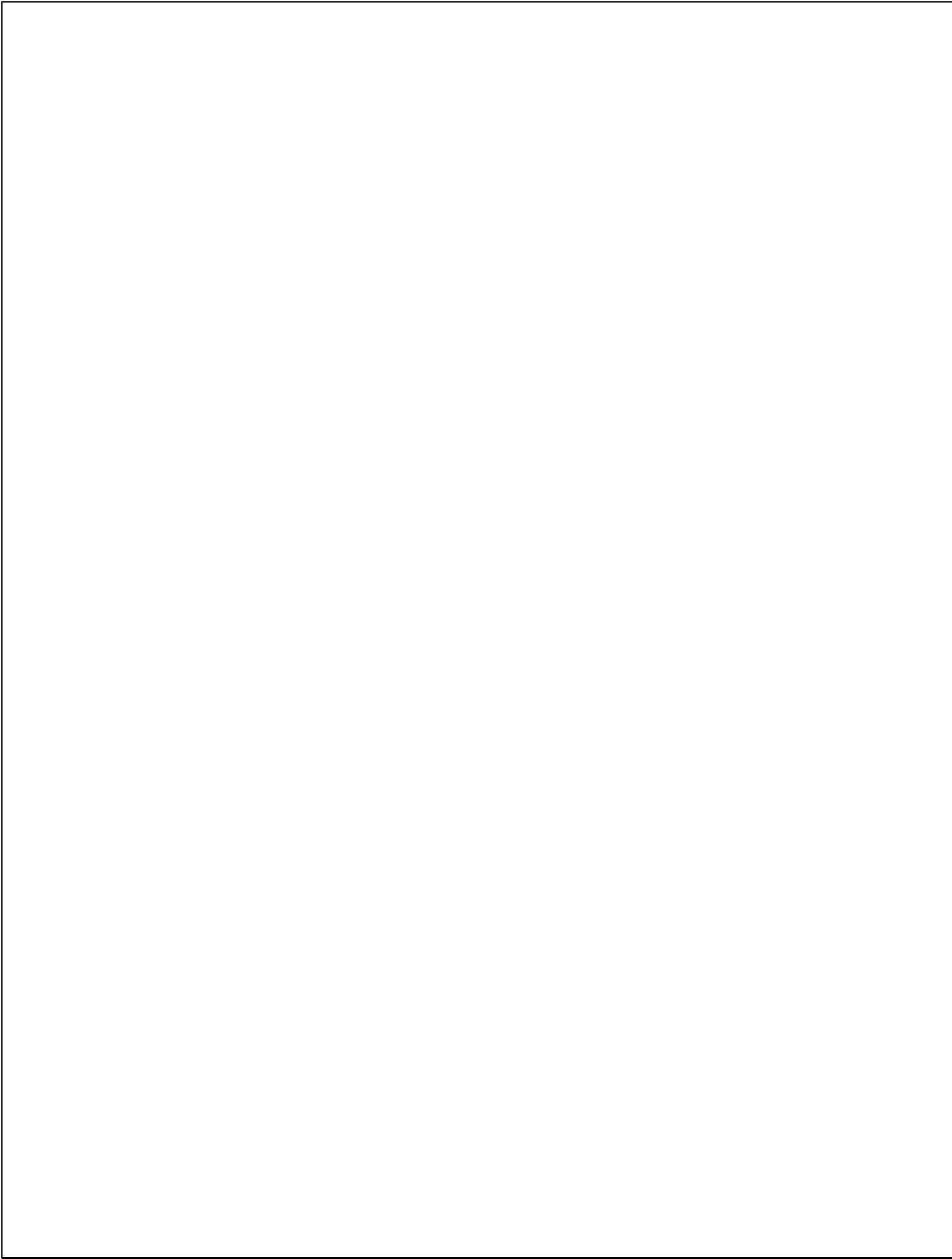
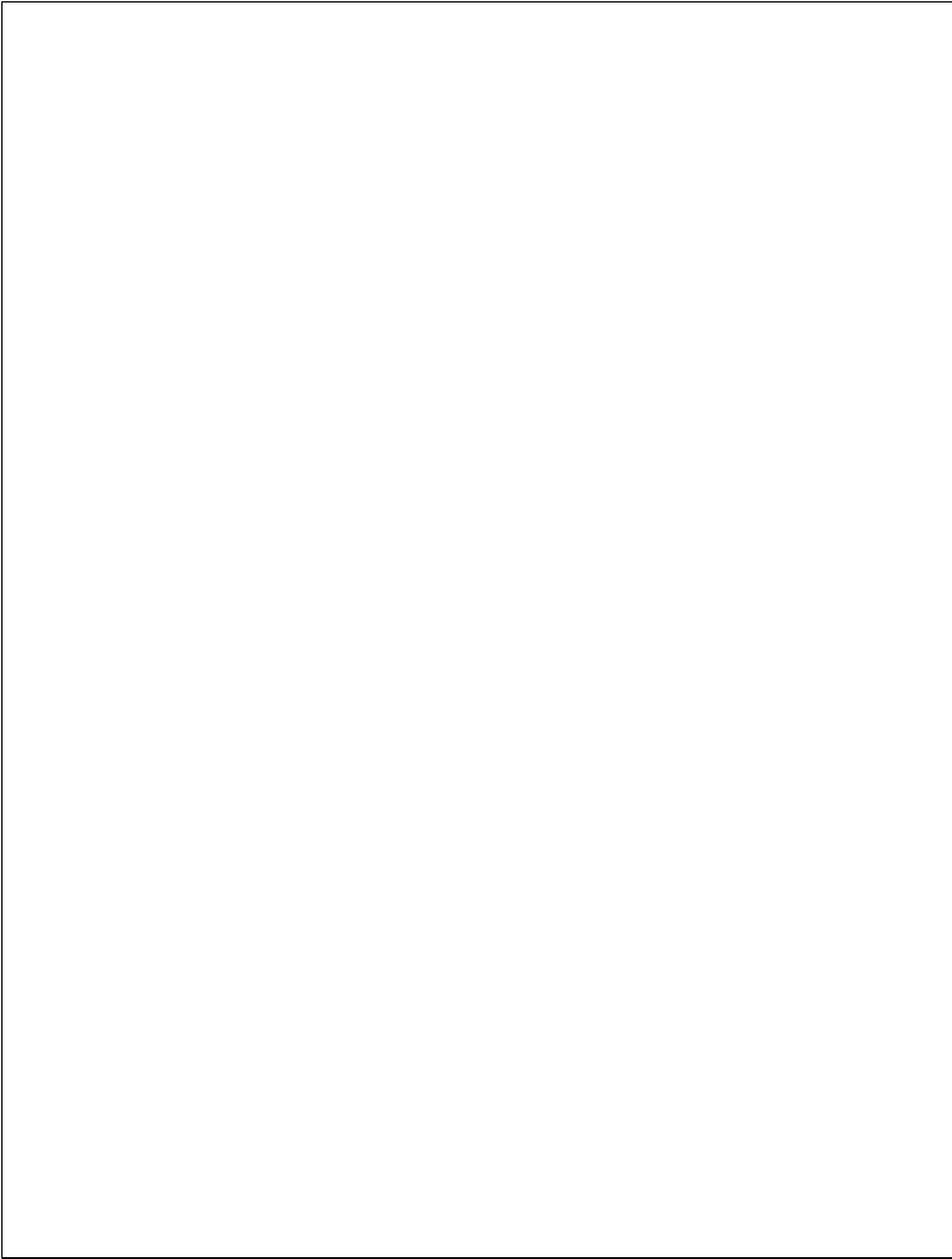


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Breakdown of Units

The Biology course consists of thirty-seven units. Each unit is composed of lessons, each of which includes a presentation divided into sections that develop the subject matter that will be studied. Each lesson also includes worksheets and generally includes video and internet links.

Below is an itemization of the division of each unit in lessons, including a detailed description of the general objectives and the name of each lesson with its corresponding essential questions, and concepts.

Unit 0. The Study of Life

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. The Study of Life

Code: C413G0SU00L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Introduction to Biology

Code: C413G0SU00L01

Essential Questions

- What is Biology?
- What are possible benefits of studying biology?
- What are the characteristics of living things?

Concepts

- adaptation
- biology
- development
- growth
- homeostasis
- organism
- organization
- reproduction
- response
- species
- stimulus

Lesson 2. The Nature of Science

Code: C413G0SU00L02

Essential questions

- What are the characteristics of scientific inquiry?
- What are the differences between science and pseudoscience?
- Why is scientific literacy important?

Concepts

- ethics
- law
- peer review
- science
- theory

Lesson 3. Methods of Science

Code: C413G0SU00L03

Essential questions

- What are the differences between an observation and an inference?
- What are the differences among a control, independent variable, and dependent variable?
- What are the scientific methods a biologist uses for research?
- Why are the metric system and SI important?

Concepts

- constant
- control group
- data
- dependent variable
- experiment
- experimental group
- hypothesis
- independent variable
- inference
- metric system
- observation
- scientific method
- SI

Unit 1. Principles of Ecology

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Principles of Ecology

Code: C413G0SU01L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Organisms and Their Relationships

Code: C413G0SU01L01

Essential questions

- What is the difference between abiotic factors and biotic factors?
- What are the interactions between the levels of biological communities?
- What is the difference between an organism's habitat and its niche?

Concepts

- abiotic factor
- biological community
- biome
- biosphere
- biotic factor
- commensalism
- ecology
- ecosystem
- habitat
- mutualism
- niche
- parasitism
- population
- predation
- symbiosis

Lesson 2. Flow of Energy in an Ecosystem

Code: C413G0SU01L02

Essential questions

- What are the producers and consumers in an ecosystem?
- How does energy flow through an ecosystem?
- What are food chains, food webs, and ecological pyramid models?

Concepts

- autotroph
- biomass
- carnivore

- detritivore
- food chain
- food web
- herbivore
- heterotroph
- omnivore
- trophic level

Lesson 3. Cycling of Matter

Code: C413G0SU01L03

Essential questions

- How do nutrients move through biotic and abiotic parts of an ecosystem?
- Why are nutrients important to living organisms?
- What are the biogeochemical cycles of nutrients and how are they alike?

Concepts

- biogeochemical cycle
- denitrification
- matter
- nitrogen fixation
- nutrient

Unit 2. Communities, Biomes, and Ecosystems

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Communities, Biomes, and Ecosystems

Code: C413G0SU02L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Community Ecology

Code: C413G0SU02L01

Essential questions

- How do unfavorable abiotic and biotic factors affect species?
- How do ranges of tolerance affect the distribution of organisms?
- What are the stages of primary and secondary succession?

Concepts

- climax community
- community
- ecological succession
- limiting factor
- primary succession
- secondary succession
- tolerance

Lesson 2. Terrestrial Biomes

Code: C413G0SU02L02

Essential questions

- How is latitude related to the three major climate zones?
- What are the major abiotic factors that determine the location of a terrestrial biome?
- How are the terrestrial biomes distinguished based on climate and biotic factors?

Concepts

- boreal forest
- climate
- desert
- grassland
- latitude
- temperate forest
- tropical rain forest
- tropical savanna
- tropical seasonal forest
- tundra

- weather
- woodland

Lesson 3. Aquatic Ecosystems

Code: C413G0SU02L03

Essential questions

- What are the major abiotic factors that determine the aquatic ecosystems?
- What are transitional aquatic ecosystems and why are they important?
- What are the zones of marine ecosystems?

Concepts

- abyssal zone
- aphotic zone
- benthic zone
- estuary
- intertidal zone
- limnetic zone
- littoral zone
- photic zone
- plankton
- profundal zone
- sediment
- wetlands

Unit 3. Population Ecology

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Population Ecology

Code: C413G0SU03L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Population Dynamics

Code: C413G0SU03L01

Essential questions

- What are the characteristics of populations and how they are distributed?
- What are the differences between density-independent and density dependent limiting factors?
- What are the similarities between the different models used to quantify the growth of a population?
- How does carrying capacity affect reproductive rates?

Concepts:

- carrying capacity
- density-dependent factor
- density-independent factor
- dispersion
- emigration
- immigration
- population density
- population growth rate

Lesson 2. Human Population

Code: C413G0SU03L02

Essential questions

- What aspects affect human population growth?
- What are the trends in human population growth?
- What are the age structures of representative nongrowing, slowly growing, and rapidly growing countries?
- What might be the consequences of continued population growth?

Concepts:

- age structure
- demographic transition
- demography
- zero population growth (ZPG)

Unit 4. Biodiversity and Conservation

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Biodiversity and Conservation

Code: C413G0SU04L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Biodiversity

Code: C413G0SU04L01

Essential questions

- What are three types of biodiversity?
- Why is biodiversity important?
- What are the direct and indirect values of biodiversity?

Concepts

- biodiversity
- ecosystem diversity
- extinction
- genetic diversity
- species diversity

Lesson 2. Threats to Biodiversity

Code: C413G0SU04L02

Essential questions

- What are the threats to biodiversity?
- How is the current extinction rate different from the background extinction rate?
- How can the decline of a single species affect an entire ecosystem?

Concepts

- background extinction
- biological magnification
- edge effect
- eutrophication
- habitat fragmentation
- introduced species
- mass extinction
- natural resource
- overexploitation

Lesson 3. Conserving Biodiversity

Code: C413G0SU04L03

Essential questions

- What are the two classes of natural resources?
- What are the methods used to conserve biodiversity?
- What are two techniques used to restore biodiversity?

Concepts

- biological augmentation
- bioremediation
- endemic
- nonrenewable resource
- renewable resource
- sustainable use

Unit 5. Chemistry in Biology

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Chemistry in Biology

Code: C413G0SU05L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Atoms, Elements, and Compounds

Code: C413G0SU05L01

Essential questions

- What are atoms?
- How are the particles that make up atoms diagrammed?
- What are the similarities between covalent and ionic bonds?
- How are van der Waals forces described?

Concepts

- atom
- compound
- covalent bond
- electron
- element
- ion
- ionic bond
- isotope
- molecule
- neutron
- nucleus
- proton
- van der Waals force

Lesson 2. Chemical Reactions

Code: C413G0SU05L02

Essential questions

- What are the parts of a chemical reaction?
- How can energy changes be related to chemical reactions?
- What is the importance of enzymes in living organisms?

Concepts

- activation energy
- active site
- catalyst
- chemical reaction
- enzyme

- product
- reactant
- substrate

Lesson 3. Water and Solutions

Code: C413G0SU05L03

Essential questions

- How does the structure of water make it a good solvent?
- What are the similarities and differences between solutions and suspensions?
- What are the differences between acids and bases?

Concepts

- acid
- base
- buffer
- hydrogen bond
- mixture
- pH
- polar molecule
- solute
- solution
- solvent

Lesson 4. The Building Blocks of Life

Code: C413G0SU05L04

Essential questions

- What is the role of carbon in living organisms?
- What are the four major families of biological macromolecules?
- What are the functions of each group of biological macromolecules?

Concepts

- amino acid
- carbohydrate
- lipid
- macromolecule
- nucleic acid
- nucleotide
- polymer
- protein

Unit 6. Cellular Structure and Function

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Cellular Structure and Function

Code: C413G0SU06L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Cell Discovery and Theory

Code: C413G0SU06L01

Essential questions

- How are the advances in microscope technology related to discoveries about cells?
- What are the similarities and differences between compound light microscopes and electron microscopes?
- What are the principles of the cell theory?
- What are the differences between a prokaryotic cell and a eukaryotic cell?

Concepts

- cell
- cell theory
- eukaryotic cell
- nucleus
- organelle
- plasma membrane
- prokaryotic cell

Lesson 2. The Plasma Membrane

Code: C413G0SU06L02

Essential questions

- How does a cell's plasma membrane function?
- What are the roles of proteins, carbohydrates, and cholesterol in the plasma membrane?

Concepts

- fluid mosaic model
- phospholipid bilayer
- selective permeability
- transport protein

Lesson 3. Structures and Organelles

Code: C413G0SU06L03

Essential questions

- What are the structures of a typical eukaryotic cell, and what are their functions?
- What are the similarities and differences between plant and animal cells?

Concepts

- cell wall
- centriole
- chloroplast
- cilium
- cytoplasm
- cytoskeleton
- endoplasmic reticulum
- flagellum
- Golgi apparatus
- lysosome
- mitochondrion
- nucleolus
- ribosome
- vacuole

Lesson 4. Cellular Transport

Code: C413G0SU06L04

Essential questions

- What are the processes of diffusion, facilitated diffusion, and active transport?
- What is the effect of a hypotonic, hypertonic, or isotonic solution on a cell?
- How do large particles enter and exit cells?

Concepts

- active transport
- diffusion
- dynamic equilibrium
- endocytosis
- exocytosis
- facilitated diffusion
- hypertonic solution
- hypotonic solution
- isotonic solution
- osmosis

Unit 7. Cellular Energy

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Cellular Energy

Code: C413G0SU07L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. How Organisms Obtain Energy

Code: C413G0SU07L01

Essential questions

- What are the two laws of thermodynamics?
- What is the difference between an anabolic pathway and a catabolic pathway?
- How does ATP work in a cell?

Concepts

- adenosine triphosphate (ATP)
- cellular respiration
- energy
- metabolism
- photosynthesis
- thermodynamics

Lesson 2. Photosynthesis

Code: C413G0SU07L02

Essential questions

- What are the two phases of photosynthesis?
- What is the function of a chloroplast during the light reactions?
- How can electron transport be described and diagramed?

Concepts

- Calvin cycle
- granum
- NADP+
- pigment
- rubisco
- stroma
- thylakoid

Lesson 3. Cellular Respiration

Code: C413G0SU07L03

Essential questions

- What are the stages of cellular respiration?
- What is the role of electron carriers in each stage of cellular respiration?
- What are the similarities between alcoholic fermentation and lactic acid fermentation?

Concepts

- aerobic process
- aerobic respiration
- anaerobic process
- fermentation
- glycolysis
- Krebs cycle

Unit 8. Cellular Reproduction

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Cellular Reproduction

Code: C413G0SU08L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Cellular Growth

Code: C413G0SU08L01

Essential questions

- Why are cells relatively small?
- What are the primary stages of the cell cycle?
- What are the stages of interphase?

Concepts

- cell cycle
- chromatin
- chromosome
- cytokinesis
- interphase
- mitosis

Lesson 2. Mitosis and Cytokinesis

Code: C413G0SU08L02

Essential questions

- What are the events of each stage of mitosis?
- What is the process of cytokinesis?

Concepts

- anaphase
- centromere
- metaphase
- prophase
- sister chromatid
- spindle apparatus
- telophase

Lesson 3. Cell Cycle Regulation

Code: C413G0SU08L03

Essential questions

- What is the role of cyclin proteins in controlling the cell cycle?
- How does cancer relate to the cell cycle?

- What is the role of apoptosis?
- What are the two types of stem cells and what are their potential uses?

Concepts

- apoptosis
- cancer
- carcinogen
- cyclin
- cyclin-dependent kinase
- stem cell

Unit 9. Sexual Reproduction and Genetics

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Sexual Reproduction and Genetics

Code: C413G0SU09L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Meiosis

Code: C413G0SU09L01

Essential questions

- How does the reduction in chromosome number occur during meiosis?
- What are the stages of meiosis?
- What is the importance of meiosis in providing genetic variation?

Concepts

- crossing over
- diploid
- fertilization
- gamete
- gene
- haploid
- homologous chromosome
- meiosis

Lesson 2. Mendelian Genetics

Code: C413G0SU09L02

Essential questions

- What is the significance of Mendel's experiments to the study of genetics?
- What is the law of segregation and the law of independent assortment?
- What are the possible offspring from a cross using a Punnett square?

Concepts

- allele
- dominant
- genetics
- genotype
- heterozygous
- homozygous
- hybrid
- law of independent assortment

- law of segregation
- phenotype
- recessive

Lesson 3. Gene Linkage and Polyploidy

Code: C413G0SU09L03

Essential questions

- How does the process of meiosis produce genetic recombination?
- How can gene linkage be used to create chromosome maps?
- Why is polyploidy important to the field of agriculture?

Concepts

- genetic recombination
- polyploidy

Unit 10. Complex Inheritance and Human Heredity

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Complex Inheritance and Human Heredity

Code: C413G0SU10L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Basic Patterns of Human Inheritance

Code: C413G0SU10L01

Essential questions

- How can genetic patterns be analyzed to determine dominant or recessive inheritance patterns?
- What are examples of dominant and recessive disorders?
- How can human pedigrees be constructed from genetic information?

Concepts

- carrier
- pedigree

Lesson 2. Complex Patterns of Inheritance

Code: C413G0SU10L02

Essential questions

- What are the differences between various complex inheritance patterns?
- How can sex-linked inheritance patterns be analyzed?
- How can the environment influence the phenotype of an organism?

Concepts

- autosome
- codominance
- epistasis
- incomplete dominance
- multiple alleles
- polygenic trait
- sex chromosome
- sex-linked trait

Lesson 3. Chromosomes and Human Heredity

Code: C413G0SU10L03

Essential questions

- How are karyotypes used to study genetic disorders?
- What is the role of telomeres?

- How is nondisjunction related to Down syndrome and other abnormal chromosome numbers?
- What are the benefits and risks of diagnostic fetal testing?

Concepts

- karyotype
- nondisjunction
- telomere

Unit 11. Molecular Genetics

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Molecular Genetics

Code: C413G0SU11L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. DNA: The Genetic Material

Code: C413G0SU11L01

Essential questions

- Which experiments led to the discovery of DNA as the genetic material?
- What is the basic structure of DNA?
- What is the basic structure of eukaryotic chromosomes?

Concepts

- double helix
- nucleosome

Lesson 2. Replication of DNA

Code: C413G0SU11L02

Essential questions

- What is the role of enzymes in the replication of DNA?
- How are leading and lagging strands synthesized differently?
- How does DNA replication compare in eukaryotes and prokaryotes?

Concepts

- semiconservative replication
- DNA polymerase
- Okazaki fragment

Lesson 3. DNA, RNA, and Protein

Code: C413G0SU11L03

Essential questions

- How are messenger RNA, ribosomal RNA, and transfer RNA involved in the transcription and translation of genes?
- What is the role of RNA polymerase in the synthesis of messenger RNA?
- How is the code of DNA translated into messenger RNA and utilized to synthesize a protein?

Concepts

- codon
- exon
- intron
- messenger RNA

- ribosomal RNA
- RNA
- RNA polymerase
- transcription
- transfer RNA
- translation

Lesson 4. Gene Regulation and Mutation

Code: C413G0SU11L04

Essential questions

- How are bacteria able to regulate their genes by two types of operons?
- How do eukaryotes regulate the transcription of genes?
- What are the various types of mutations?

Concepts

- gene regulation
- mutagen
- mutation
- operon

Unit 12. Genetics and Biotechnology

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Genetics and Biotechnology

Code: C413G0SU12L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Applied Genetics

Code: C413G0SU12L01

Essential questions

- How is selective breeding used to produce organisms with desired traits?
- What are similarities and differences between inbreeding and hybridization?
- How does a Punnett square test cross help assess the genotypes of organisms?

Concepts

- inbreeding
- selective breeding
- test cross

Lesson 2. DNA Technology

Code: C413G0SU12L02

Essential questions

- What are the different tools and processes used in genetic engineering?
- How does genetic engineering manipulate recombinant DNA?
- What are the similarities between selective breeding and genetic engineering?
- How can genetic engineering and biotechnology be used to improve human life?

Concepts

- cloning
- DNA ligase
- gel electrophoresis
- genetic engineering
- genome
- plasmid
- polymerase chain reaction
- recombinant DNA
- restriction enzyme

- transformation
- transgenic organism

Lesson 3. The Human Genome

Code: C413G0SU12L03

Essential questions

- What are the components of the human genome?
- How do forensic scientists use DNA fingerprinting?
- How can information from the human genome be used to treat human diseases?

Concepts

- bioinformatics
- DNA fingerprinting
- DNA microarray
- gene therapy
- genomics
- haplotype
- pharmacogenomics
- proteomics
- single nucleotide polymorphism

Unit 13. The History of Life

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. The History of Life

Code: C413G0SU13L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Fossil Evidence of Change

Code: C413G0SU13L01

Essential questions

- What are the similarities and differences between Earth's early environment and Earth's current environment?
- What is a typical sequence of events in fossilization?
- How are the different techniques for dating fossils used?
- What are the major events on the geologic time scale?

Concepts

- Cambrian explosion
- eon
- epoch
- era
- fossil
- geologic time scale
- half-life
- K-T boundary
- law of superposition
- paleontologist
- period
- plate tectonics
- radiometric dating
- relative dating

Lesson 2. The Origin of Life

Code: C413G0SU13L02

Essential questions

- What are the differences between spontaneous generation and biogenesis?
- What might have been the sequence of events that led to cellular life?
- What is the endosymbiont theory?

Concepts

- endosymbiont theory
- spontaneous generation

- theory of biogenesis

Unit 14. Evolution

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Evolution

Code: C413G0SU14L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Darwin's Theory of Evolution by Natural Selection

Code: C413G0SU14L01

Essential questions

- What evidence convinced Darwin that species could change over time?
- What are the four principles of natural selection?
- How can natural selection change a population?

Concepts

- artificial selection
- evolution
- natural selection

Lesson 2. Evidence of Evolution

Code: C413G0SU14L02

Essential questions

- How do fossils provide evidence of evolution?
- How does morphology provide evidence of evolution?
- How does biochemistry provide evidence of evolution?

Concepts

- analogous structure
- ancestral trait
- biogeography
- camouflage
- derived trait
- embryo
- fitness
- homologous structure
- mimicry
- vestigial structure

Lesson 3. Shaping Evolutionary Theory

Code: C413G0SU14L03

Essential questions

- What are the conditions of the Hardy-Weinberg principle?
- What patterns can be observed in evolution?

- What factors influence speciation?

Concepts

- adaptive radiation
- allopatric speciation
- bottleneck
- directional selection
- disruptive selection
- founder effect
- genetic drift
- gradualism
- Hardy-Weinberg principle
- postzygotic isolating mechanism
- prezygotic isolating mechanism
- punctuated equilibrium
- sexual selection
- stabilizing selection
- sympatric speciation

Unit 15. Primate Evolution

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Primate Evolution

Code: C413G0SU15L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Primates

Code: C413G0SU15L01

Essential questions

- What are the characteristics of primates?
- What are the similarities and differences between major primate groups?
- How can the evolution of primates be traced?

Concepts

- anthropoid
- arboreal
- binocular vision
- diurnal
- hominin
- nocturnal
- opposable first digit
- prehensile tail

Lesson 2. Hominoids to Hominins

Code: C413G0SU15L02

Essential questions

- What are the features of hominoids and hominins?
- How can hominoid evolution be traced from *Proconsul* to *Homo*?
- What are the similarities between the various australopithecine species?

Concepts

- australopithecine
- bipedal
- hominoid

Lesson 3. Human Ancestry

Code: C413G0SU15L03

Essential questions

- How can the species in the genus *Homo* be described?
- What is the Out-of-Africa hypothesis?
- What are the similarities and differences between Neanderthals and modern humans?

Concepts

- Cro-Magnon
- *Homo*
- Neanderthal

Unit 16. Organizing Life's Diversity

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Organizing Life's Diversity

Code: C413G0SU16L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. The History of Classification

Code: C413G0SU16L01

Essential questions

- What are the similarities and differences between Aristotle's and Linnaeus's methods of classification?
- Using binomial nomenclature, how are scientific names written?
- What are the categories used in biological classification?

Concepts

- binomial nomenclature
- class
- classification
- division
- domain
- family
- genus
- kingdom
- order
- phylum
- taxon
- taxonomy

Lesson 2. Modern Classification

Code: C413G0SU16L02

Essential questions

- What are the similarities and differences between species concepts?
- What are the methods used to reveal phylogeny?
- How is a cladogram constructed?

Concepts

- character
- cladistics
- cladogram
- molecular clock
- phylogeny

Lesson 3. Domains and Kingdoms

Code: C413G0SU16L03

Essential questions

- What are the major characteristics of the three domains?
- What are the differences among the six kingdoms?
- How are organisms classified at the kingdom level?

Concepts

- archaea
- fungus
- protist

Unit 17. Bacteria and Viruses

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Bacteria and Viruses

Code: C413G0SU17L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Bacteria

Code: C413G0SU17L01

Essential questions

- What are the differences between archaea and bacteria and their subcategories?
- What are the survival methods of bacteria at both the individual and population levels?
- How are bacteria beneficial to humans?

Concepts

- bacteria
- binary fission
- capsule
- conjugation
- endospore
- nucleoid
- pilus

Lesson 2. Viruses and Prions

Code: C413G0SU17L02

Essential questions

- What is the general structure of a virus?
- What are similarities and differences in the lytic cycle, the lysogenic cycle, and retroviral replication?
- What is the relationship between a prion's structure, replication, and action and its ability to cause disease?

Concepts

- capsid
- lysogenic cycle
- lytic cycle
- prion
- retrovirus
- virus

Unit 18. Protists

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Protists

Code: C413G0SU18L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Introduction to Protists

Code: C413G0SU18L01

Essential questions

- How are protists classified?
- How might some protists with mitochondria have evolved?
- How might some protists with chloroplasts have evolved?
- Why might the organization of Kingdom Protista change?

Concepts

- microsporidium
- protozoan

Lesson 2. Protozoans- Animal-like Protists

Code: C413G0SU18L02

Essential questions

- What are the characteristics of protozoans?
- What are the structures and organelles of protozoans?
- What are the life cycles of protozoans?

Concepts

- contractile vacuole
- pellicle
- pseudopod
- test
- trichocyst

Lesson 3. Algae- Plantlike Protists

Code: C413G0SU18L03

Essential questions

- What are the characteristics of the different phyla of algae?
- What is the role of secondary photosynthetic pigments that are characteristic of some algae?
- How do diatoms differ from most other types of algae?

Concepts

- alternation of generations
- bioluminescent

- colony

Lesson 4. Funguslike Protists

Code: C413G0SU18L04

Essential questions

- What are the characteristics of cellular and acellular slime molds?
- How are the life cycles of cellular and acellular slime molds similar?
- How do water molds obtain their nutrition?

Concepts

- acrasin
- plasmodium

Unit 19. Fungi

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Fungi

Code: C413G0SU19L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Introduction to Fungi

Code: C413G0SU19L01

Essential questions

- What are the major characteristics of organisms in Kingdom Fungi?
- How do fungi obtain nutrients and how does that include their role as decomposers?
- What are the three types of asexual reproduction in fungi?

Concepts

- chitin
- fruiting body
- haustorium
- hypha
- mycelium
- septum
- sporangium
- spore

Lesson 2. Diversity of Fungi

Code: C413G0SU19L02

Essential questions

- What are the four major phyla of fungi?
- What are the distinguishing traits of each fungus phylum?
- What are the reproductive strategies of each fungus phylum?

Concepts

- ascocarp
- ascospore
- ascus
- basidiocarp
- basidiospore
- basidium
- conidiophore
- gametangium
- rhizoid
- stolon

Lesson 3. Ecology of Fungi

Code: C413G0SU19L03

Essential questions

- What are the characteristics of lichens?
- What are the characteristics of mycorrhizal relationships?
- What are some beneficial and harmful effects that fungi can have on humans?

Concepts

- bioindicator
- lichen
- mycorrhiza

Unit 20. Introduction to Plants

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Introduction to Plants

Code: C413G0SU20L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Plant Evolution and Adaptations

Code: C413G0SU20L01

Essential questions

- How do the characteristics of plants and green algae compare?
- What are the adaptations of plants to land environments?
- What is the importance of vascular tissue to plant life on land?
- What is alternation of generations of plants?
- What are the divisions of the plant kingdom?

Concepts

- nonvascular plant
- seed
- stomata
- vascular plant
- vascular tissue

Lesson 2. Nonvascular Plants

Code: C413G0SU20L02

Essential questions

- What are the structures of nonvascular plants?
- What are the similarities and differences among the nonvascular plant divisions?

Concept

- thallose

Lesson 3. Seedless Vascular Plants

Code: C413G0SU20L03

Essential questions

- What are the characteristics of seedless vascular plants?
- What are the similarities and differences between the characteristics of club mosses and ferns?

Concepts

- epiphyte
- rhizome
- sorus

- sporangium
- strobilus

Lesson 4. Vascular Seed Plants

Code: C413G0SU20L04

Essential questions

- What are the similarities and differences among the seed plants?
- What are the divisions of gymnosperms?
- What are the life spans of angiosperms?

Concepts

- annual
- biennial
- cone
- cotyledon
- perennial

Unit 21. Plant Structure and Function

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Plant Structure and Function

Code: C413G0SU21L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Plant Cells and Tissues

Code: C413G0SU21L01

Essential questions

- What are the major types of plant cells?
- What are the major types of plant tissues?
- What are the differences among the functions of plant cells and tissues?

Concepts

- collenchyma cell
- companion cell
- cork cambium
- epidermis
- ground tissue
- guard cell
- meristem
- parenchyma cell
- phloem
- sclerenchyma cell
- sieve tube member
- tracheid
- vascular cambium
- vessel element
- xylem

Lesson 2. Roots, Stems, and Leaves

Code: C413G0SU21L02

Essential questions

- How are the structures of roots, stems, and leaves related to their functions?
- How do the structures and functions of roots, stems, and leaves compare?

Concepts

- cortex
- endodermis
- palisade mesophyll

- pericycle
- petiole
- root cap
- spongy mesophyll
- transpiration

Lesson 3. Plant Hormones and Responses

Code: C413G0SU21L03

Essential questions

- What are the major types of plant hormones?
- How do hormones affect the growth of plants?
- How are the different types of plant responses alike?

Concepts

- auxin
- cytokinin
- ethylene
- gibberellins
- nastic response
- tropism

Unit 22. Reproduction in Plants

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Reproduction in Plants

Code: C413G0SU22L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Introduction to Plant Reproduction

Code: C413G0SU22L01

Essential questions

- What are advantages of vegetative reproduction?
- What are the stages of alternation of generations?
- What are the similarities among the reproduction of mosses, ferns, and conifers?

Concepts

- chemotaxis
- heterosporous
- megaspore
- micropyle
- microspore
- prothallus
- protonema
- vegetative reproduction

Lesson 2. Flowers

Code: C413G0SU22L02

Essential questions

- What are the parts of a flower and what are their functions?
- What are complete, incomplete, perfect, and imperfect flowers?
- What is the difference between monocot and eudicot flowers?
- What is photoperiodism?

Concepts

- day-neutral plant
- intermediate-day plant
- long-day plant
- petal
- photoperiodism
- pistil
- sepal
- short-day plant
- stamen

Lesson 3. Flowering Plants

Code: C413G0SU22L03

Essential questions

- How can the life cycle of a flowering plant be described?
- What is the process of fertilization and seed formation in flowering plants?
- What are the different methods of seed dispersal?
- What is seed germination?

Concepts

- dormancy
- endosperm
- germination
- hypocotyl
- polar nuclei
- radicle
- seed coat

Unit 23. Introduction to Animals

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Introduction to Animals

Code: C413G0SU23L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Animal Characteristics

Code: C413G0SU23L01

Essential questions

- How do adaptations enable animals to live in different habitats?
- How is structure and function related in animals?
- What are the stages of embryonic development in animals?

Concepts

- blastula
- ectoderm
- endoderm
- endoskeleton
- exoskeleton
- external fertilization
- gastrula
- hermaphrodite
- internal fertilization
- invertebrate
- mesoderm
- vertebrate
- zygote

Lesson 2. Animal Body Plans

Code: C413G0SU23L02

Essential questions

- How are animal body plans related to phylogeny?
- How are body cavities related to animal phylogeny?
- What are the two types of coelomate development?

Concepts

- acoelomate
- anterior
- bilateral symmetry
- cephalization
- coelom
- deuterostome

- dorsal
- posterior
- protostome
- pseudocoelom
- radial symmetry
- symmetry
- ventral

Lesson 3. Sponges and Cnidarians

Code: C413G0SU23L03

Essential questions

- What are the characteristics of sponges and cnidarians?
- How are sponges and cnidarians alike and different?
- What is the ecological importance of sponges and cnidarians?

Concepts

- cnidocytes
- filter feeder
- gastrovascular cavity
- medusa
- nematocyst
- nerve net
- polyp
- sessile

Unit 24. Worms and Mollusks

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Worms and Mollusks

Code: C413G0SU24L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Flatworms

Code: C413G0SU24L01

Essential questions

- What are the adaptations of free-living flatworms and parasitic flatworms?
- How do flatworms maintain homeostasis?
- What are the three classes of flatworms and what are characteristics of each?

Concepts

- flame cell
- ganglion
- pharynx
- proglottid
- regeneration
- scolex

Lesson 2. Roundworms and Rotifers

Code: C413G0SU24L02

Essential questions

- What are the similarities between the features of roundworms and flatworms?
- How can roundworms be identified based on movement?
- What are the ways humans risk contracting roundworm parasites?

Concepts

- hydrostatic skeleton
- trichinosis

Lesson 3. Mollusks

Code: C413G0SU24L03

Essential questions

- What is the importance of the coelom to mollusks?
- What is the function of the mantle and what are its adaptive advantages to mollusks?
- What is the importance of mucus and the muscular foot to mollusks?

Concepts

- closed circulatory system
- gill
- mantle
- nephridium
- open circulatory system
- radula
- siphon

Lesson 4. Segmented Worms

Code: C413G0SU24L04

Essential questions

- What are the similarities among segmented worms, flatworms, and roundworms?
- What is the importance of segmentation as an adaptation for survival in segmented worms?
- What are the features of the three main classes of annelids that make them well-suited for their habitats?

Concepts

- clitellum
- crop
- gizzard
- seta

Unit 25. Arthropods

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Arthropods

Code: C413G0SU25L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Arthropods Characteristics

Code: C413G0SU25L01

Essential questions

- What is the importance of exoskeletons, jointed appendages, and segmentation to arthropods?
- What are some similarities and differences among the organ systems of arthropods?
- What are the methods used by arthropods to respond to stimuli?

Concepts

- abdomen
- appendage
- book lung
- cephalothorax
- Malpighian tubule
- mandible
- molting
- pheromone
- spiracle
- thorax
- tracheal tube

Lesson 2. Arthropod Diversity

Code: C413G0SU25L02

Essential questions

- What are the structures and their functions found in the major groups of arthropods?
- What are the adaptations in the major groups of arthropods?
- What are characteristics of crustaceans and arachnids?

Concepts

- chelicera
- cheliped
- pedipalp
- spinneret
- swimmeret

Lesson 3. Insects and Their Relatives

Code: C413G0SU25L03

Essential questions

- What are characteristics and adaptations of insects?
- What are similarities and differences between complete and incomplete metamorphosis?
- How do insects interact and communicate with each other?

Concepts

- caste
- metamorphosis
- nymph
- pupa

Unit 26. Echinoderms and Invertebrate Chordates

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Echinoderms and Invertebrate Chordates

Code: C413G0SU26L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Echinoderm Characteristics

Code: C413G0SU26L01

Essential questions

- What are the characteristics common to echinoderms?
- How do the water-vascular system and tube feet adaptations enable echinoderms to be successful?
- What distinguishes the classes of echinoderms from each other?

Concepts

- ampulla
- madreporite
- pedicellaria
- tube foot
- water-vascular system

Lesson 2. Invertebrate Chordates

Code: C413G0SU26L02

Essential questions

- What are the features of invertebrate chordates that place them in the phylum Chordata?
- What are the features of invertebrate chordates that place them with invertebrates?
- What are the similarities between the adaptations of lancelets and sea squirts?

Concepts

- chordate
- dorsal tubular nerve cord
- invertebrate chordate
- notochord
- pharyngeal pouch
- postanal tail

Unit 27. Fishes and Amphibians

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Fishes and Amphibians

Code: C413G0SU27L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Fishes

Code: C413G0SU27L01

Essential questions

- What are the features of vertebrates that make them different from invertebrates?
- What are the characteristics that most fishes have in common?
- How are the characteristics of fishes adapted to aquatic life?

Concepts

- atrium
- cartilage
- fin
- lateral line system
- nephron
- neural crest
- operculum
- scale
- spawning
- swim bladder
- ventricle

Lesson 2. Diversity of Today's Fishes

Code: C413G0SU27L02

Essential questions

- What are the characteristics of different groups of fishes?
- What are similarities and differences between the key features of various types of fishes?
- How is the evolution of fishes explained?

Concept

- tetrapod

Lesson 3. Amphibians

Code: C413G0SU27L03

Essential questions

- What were the kinds of adaptations that were important as animals moved to the land?
- What are the characteristics of amphibians?
- What are the differences between the orders of amphibians?

Concepts

- cloaca
- ectotherm
- nictitating membrane
- tympanic membrane

Unit 28. Reptiles and Birds

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Reptiles and Birds

Code: C413G0SU28L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Reptiles

Code: C413G0SU28L01

Essential questions

- What is the importance of the amniotic egg in the transition to life on land?
- What are the characteristics of reptiles?
- What are the differences between orders of reptiles?

Concepts

- amnion
- amniotic egg
- carapace
- Jacobson's organ
- plastron

Lesson 2. Birds

Code: C413G0SU28L02

Essential questions

- What are the characteristics of birds?
- How are the adaptations of birds related to their ability to fly?
- What are the characteristics of the different orders of birds?

Concepts

- air sac
- contour feather
- down feather
- endotherm
- feather
- incubate
- preen gland
- sternum

Unit 29. Mammals

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Mammals

Code: C413G0SU29L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Mammalian Characteristics

Code: C413G0SU29L01

Essential questions

- What are the characteristics of mammals?
- How do mammals maintain a constant temperature?
- How does respiration in mammals differ from that of other vertebrates?

Concepts

- cerebellum
- cerebral cortex
- diaphragm
- gestation
- gland
- mammary gland
- placenta
- uterus

Lesson 2. Diversity of Mammals

Code: C413G0SU29L02

Essential questions

- What are the characteristics of mammals in each of the three subgroups of living mammals?
- What are the adaptations that contribute to the diversity of mammals and enable them to live in a variety of habitats?
- How might mammals have evolved?

Concepts

- marsupial
- monotreme
- placental mammal
- therapsid

Unit 30. Animal Behavior

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Animal Behavior

Code: C413G0SU30L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Basic Behaviors

Code: C413G0SU30L01

Essential questions

- How are animal behaviors related to evolution by natural selection?
- What are the differences between innate and learned behaviors?
- What are the different types of animal behavior and what are examples of each?

Concepts

- behavior
- classical conditioning
- cognitive behavior
- fixed action pattern
- habituation
- imprinting
- innate behavior
- learned behavior
- operant conditioning

Lesson 2. Ecological Behaviors

Code: C413G0SU30L02

Essential questions

- What are different types of competitive behaviors and what are examples of each?
- What is the importance of foraging, migration, and biological rhythms?
- What are the different types of communication, nurturing, and cooperative behaviors?
- What are the advantages and disadvantages of behavior in terms of survival and reproductive success?

Concepts

- agonistic behavior
- altruistic behavior
- circadian rhythm
- courting behavior
- dominance hierarchy

- foraging behavior
- language
- migratory behavior
- nurturing behavior
- territorial behavior

Unit 31. Integumentary, Skeletal, and Muscular Systems

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Integumentary, Skeletal, and Muscular Systems

Code: C413G0SU31L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. The Integumentary System

Code: C413G0SU31L01

Essential questions

- What are the four tissue types that are found in the integumentary system?
- What are the functions of the integumentary system?
- What are the two layers of skin composed of?
- What are the events that occur when skin is repaired?

Concepts

- dermis
- epidermis
- hair follicle
- keratin
- melanin
- sebaceous gland

Lesson 2. The Skeletal System

Code: C413G0SU31L02

Essential questions

- What are the differences between the bones of the axial and appendicular skeletons?
- How is new bone formed?
- What are the functions of the skeletal system?

Concepts

- appendicular skeleton
- axial skeleton
- compact bone
- ligament
- ossification
- osteoblast
- osteoclast
- osteocyte
- red bone marrow
- spongy bone

- yellow bone marrow

Lesson 3. The Muscular System

Code: C413G0SU31L03

Essential questions

- What are the three types of muscle tissue?
- What are the events involved in muscle contraction at the cellular and molecular levels?
- What are the differences between slow-twitch and fast-twitch muscle fibers?

Concepts

- actin
- cardiac muscle
- involuntary muscle
- myofibril
- myosin
- sarcomere
- skeletal muscle
- smooth muscle
- tendon
- voluntary muscle

Unit 32. Nervous System

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Nervous System

Code: C413G0SU32L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Structure of the Nervous System

Code: C413G0SU32L01

Essential questions

- What are the major parts of a neuron and what is the function of each part?
- How is a nerve impulse similar to an electrical signal, and how does it move along a neuron?

Concepts

- action potential
- axon
- cell body
- dendrite
- neuron
- neurotransmitter
- node
- reflex arc
- synapse
- threshold

Lesson 2. Organization of the Nervous System

Code: C413G0SU32L02

Essential questions

- How can the major divisions of the nervous system be illustrated?
- What are the similarities and differences between the somatic nervous system and the autonomic nervous system?

Concepts

- autonomic nervous system
- central nervous system
- cerebrum
- hypothalamus
- medulla oblongata
- parasympathetic nervous system
- peripheral nervous system
- pons

- somatic nervous system
- sympathetic nervous system

Lesson 3. The Senses

Code: C413G0SU32L03

Essential questions

- What are the different sensory structures and what are each of them able to detect?
- How is each sense organ able to transmit a nerve impulse?
- What is the relationship between smell and taste?

Concepts

- cochlea
- cones
- lens
- retina
- rods
- semicircular canal
- taste bud

Lesson 4. Effects of Drugs

Code: C413G0SU32L04

Essential questions

- What are the four ways that drugs can affect the nervous system?
- What are different ways that drugs can harm the body or cause death?
- How, at the cellular level, can a person become addicted to a drug?

Concepts

- addiction
- depressant
- dopamine
- drug
- stimulant
- tolerance

Unit 33. Circulatory, Respiratory, and Excretory Systems

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Circulatory, Respiratory, and Excretory Systems

Code: C413G0SU33L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Circulatory System

Code: C413G0SU33L01

Essential questions

- What are the main functions of the circulatory system?
- How does the blood flow through the heart and body?
- What are the similarities and differences between the major components of the blood?

Concepts

- artery
- atherosclerosis
- capillary
- heart
- pacemaker
- plasma
- platelet
- red blood cell
- valve
- vein
- white blood cell

Lesson 2. Respiratory System

Code: C413G0SU33L02

Essential questions

- What is the difference between internal and external respiration?
- What is the path of the air through the respiratory system?
- What changes occur in the body during breathing?

Concepts

- alveolus
- breathing
- bronchus
- external respiration
- internal respiration
- lung
- trachea

Lesson 3. Excretory System

Code: C413G0SU33L03

Essential questions

- What is the function of the kidney in the body?
- What are the steps of the excretion of wastes from the Bowman's capsule to the urethra?
- What is the difference between filtration and reabsorption in the kidneys?

Concepts

- kidney
- urea

Unit 34. Digestive and Endocrine Systems

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Digestive and Endocrine Systems

Code: C413G0SU34L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. The Digestive System

Code: C413G0SU34L01

Essential questions

- What are the three main functions of the digestive system?
- What are the structures of the digestive system and what are their functions?
- What is the process of chemical digestion?

Concepts

- amylase
- chemical digestion
- esophagus
- large intestine
- liver
- mechanical digestion
- pepsin
- peristalsis
- small intestine
- villus

Lesson 2. Nutrition

Code: C413G0SU34L02

Essential questions

- Depending on activity level, what caloric intake is needed to maintain proper body weight?
- How are proteins, carbohydrates, and fats used by the body?
- What are the roles of vitamins and minerals in maintaining homeostasis?
- How can you apply the information in MyPyramid and on food labels to establishing healthy eating habits?

Concepts

- Calorie
- mineral
- nutrition
- vitamin

Lesson 3. The Endocrine System

Code: C413G0SU34L03

Essential questions

- What are the functions of the glands that make up the endocrine system?
- What is the role of the endocrine system in maintaining homeostasis?
- What are the feedback mechanisms that regulate hormone levels in the body?

Concepts

- aldosterone
- antidiuretic hormone
- calcitonin
- cortisol
- endocrine gland
- glucagon
- hormone
- insulin
- parathyroid hormone
- pituitary gland
- thyroxine

Unit 35. Human Reproduction and Development

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. Human Reproduction and Development

Code: C413G0SU35L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Reproductive Systems

Code: C413G0SU35L01

Essential questions

- What are the structures of the male and female reproductive systems and what are the functions of each?
- How do hormones regulate the male and female reproductive systems?
- What are the events that take place during a menstrual cycle?

Concepts

- epididymis
- menstrual cycle
- oocyte
- oviduct
- polar body
- puberty
- semen
- seminiferous tubule
- urethra
- vas deferens

Lesson 2. Human Development Before Birth

Code: C413G0SU35L02

Essential questions

- What are the events that take place during the first week following fertilization?
- What are the major changes that occur during each trimester of development?
- How are female hormone levels altered during pregnancy?

Concepts

- amniotic fluid
- blastocyst
- morula

Lesson 3. Birth, Growth, and Aging

Code: C413G0SU35L03

Essential questions

- What are the events that occur during the three stages of birth?
- What are the stages of human development from infancy to adulthood?
- What are the hormones necessary for growth?

Concepts

- adolescence
- adulthood
- dilation
- expulsion stage
- infancy
- labor
- placental stage

Unit 36. The Immune System

At the end of this unit the student will have answered the essential questions found in the following lessons.

Lesson 0. The Immune System

Code: C413G0SU36L00

Unit Documents: BioLab, Reading, Rubric Assess Writing Assignments, Standardized Test Practice, Study Guide and Summative Assessment.

Lesson 1. Infectious Diseases

Code: C413G0SU36L01

Essential questions

- What are Koch's postulates?
- How are diseases transmitted and how do reservoirs play a role in disease dispersal?
- What are the symptoms and treatment of infectious diseases?
- What are disease patterns?

Concepts

- antibiotic
- endemic disease
- epidemic
- infectious disease
- Koch's postulates
- pandemic
- pathogen
- reservoir

Lesson 2. The Immune System

Code: C413G0SU36L02

Essential questions

- What are the similarities and differences between nonspecific and specific immunity?
- What is the structure and function of the lymphatic system?
- What is the importance of B cells and T cells?
- What are the differences between passive and active immunity?

Concepts

- antibody
- B cell
- complement protein
- cytotoxic T cell
- helper T cell
- immunization
- interferon

- lymphocyte
- memory cell

Lesson 3. Noninfectious Disorders

Code: C413G0SU36L03

Essential questions

- What are the five categories of noninfectious diseases?
- What is the role of allergens in allergies?
- What is the difference between allergies and anaphylactic shock?

Concepts

- allergy
- anaphylactic shock
- degenerative disease
- metabolic disease

