

# DREYFOUS & ASSOCIATES

Course Overview

# Life Science



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#### **Breakdown of Units**

The Life Science course consists of twenty-four 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 the essential questions and concepts of each lesson.

#### **Unit 0. Scientific Explanations**

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

#### Lesson 0. Scientific Explanations

**Code:** C410G0SU00L00

Unit Documents: Nature of Science and Study Guide and Review.

#### Lesson 1. Understanding Science

#### Code: C410G0SU00L01

#### **Essential questions**

- What is scientific inquiry?
- What are the results of scientific investigations?
- How can a scientist prevent bias in a scientific investigation?

## Concepts

- critical thinking
- hypothesis
- inference
- observation
- prediction
- science
- scientific law
- scientific theory
- technology

#### Lesson 2. Measurement and Scientific Tools

#### **Code:** C410G0SU00L02

#### **Essential questions**

• What is the difference between accuracy and precision?

- Why should you use significant digits?
- What are some tools used by life scientists?

## Concepts

- accuracy
- description
- explanation
- International System of Units (SI)
- precision
- significant digits

## Lesson 3. Case Study: Biodiesel from Algae

## **Code:** C410G0SU00L03

## **Essential questions**

- How do independent and dependent variables differ?
- How is scientific inquiry used in a real-life scientific investigation?

- constants
- dependent variable
- independent variable
- variable

## Unit 1. Classifying and Exploring Life

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

## Lesson 0. Classifying and Exploring Life

**Code:** C410G0SU01L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

## Lesson 1. Characteristics of Life

**Code:** C410G0SU01L01

## **Essential questions**

- What characteristics do all living things share?
- Concepts
  - cell
  - homeostasis
  - multicellular
  - organism
  - unicellular

## Lesson 2. Classifying Organisms

## **Code:** C410G0SU01L02

#### **Essential questions**

- What methods are used to classify living things into groups?
- Why does every species have a scientific name?

#### Concepts

- binormal nomenclature
- cladogram
- dichotomous key
- genus
- species

## Lesson 3. Exploring Life

## **Code:** C410G0SU01L03

#### **Essential questions**

- How microscopes change our ideas about living things?
- What are the types of microscopes, and how do they compare?

- compound microscope
- electron microscope
- light microscope

#### Unit 2. Cell Structure and Function

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

#### Lesson 0. Cell Structure and Function

**Code:** C410G0SU02L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. Cells and Life

**Code:** C410G0SU02L01

#### **Essential questions**

- How did scientists' understanding of cells develop?
- What basic substances make up a cell?

#### Concepts

- carbohydrate
- cell theory
- lipid
- macromolecule
- nucleic acid
- protein

#### Lesson 2. The Cell

#### **Code:** C410G0SU02L02

#### **Essential questions**

- How are prokaryotic cells and eukaryotic cells similar, and how are they different?
- What do the structures in a cell do?

#### Concepts

- cell membrane
- cell wall
- chloroplast
- cytoplasm
- cytoskeleton
- nucleus
- organelle

#### Lesson 3. Moving Cellular Material

#### **Code:** C410G0SU02L03

#### **Essential questions**

• How do materials enter and leave cells?

• How does cell size affect the transport of materials?

#### Concepts

- active transport
- diffusion
- endocytosis
- exocytosis
- facilitated diffusion
- osmosis
- passive transport

## Lesson 4. Cells and Energy

**Code:** C410G0SU02L04

#### **Essential questions**

- How does a cell obtain energy?
- How do some cells make food molecules?

- cellular respiration
- fermentation
- glycolysis
- photosynthesis

#### Unit 3. From a Cell to an Organism

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

#### Lesson 0. From a Cell to an Organism

**Code:** C410G0SU03L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. The Cell Cycle and Cell Division

**Code:** C410G0SU03L01

#### **Essential questions**

- What are the phases of the cell cycle?
- Why is the result of the cell cycle important?

#### Concepts

- cell cycle
- centromere
- cytokinesis
- daughter cell
- interphase
- mitosis
- sister chromatid

## Lesson 2. Levels of Organization

#### **Code:** C410G0SU03L02

#### **Essential questions**

- How do unicellular and multicellular organisms differ?
- How does cell differentiation lead to the organization within a multicellular organism?

- cell differentiation
- organ
- organ system
- stem cell
- tissue

#### Unit 4. Reproduction of Organisms

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

#### Lesson 0. Reproduction of Organisms

**Code:** C410G0SU04L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. Sexual Reproduction and Meiosis

**Code:** C410G0SU04L01

#### **Essential questions**

- What is sexual reproduction, and why is beneficial?
- What is the order of the phases of meiosis, and what happens during each phase?
- Why is meiosis important?

#### Concepts

- diploid
- egg
- fertilization
- Homologous chromosomes
- Haploid
- meiosis
- sexual reproduction
- sperm
- zygote

#### Lesson 2. Asexual Reproduction

**Code:** C410G0SU04L02

#### **Essential questions**

- What is asexual reproduction, and why is beneficial?
- How do the types of asexual reproduction differ?

- asexual reproduction
- budding
- cloning
- fission
- regeneration
- vegetative reproduction

#### Unit 5. Genetics

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

#### Lesson 0. Genetics

**Code:** C410G0SU05L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. Mendel and His Peas

#### **Code:** C410G0SU05L01

#### **Essential questions**

- Why did Mendel perform cross-pollination experiments?
- What did Mendel conclude about inherited traits?
- How do dominant and recessive factors interact?

#### Concepts

- dominant trait
- genetics
- heredity
- recessive trait

#### Lesson 2. Understanding Inheritance

#### **Code:** C410G0SU05L02

#### **Essential questions**

- What determines the expression of traits?
- How can inheritance be modeled?
- How do some patterns or inheritance differ from Mendel's model?

#### Concepts

- allele
- codominance
- gene
- genotype
- heterozygous
- homozygous
- incomplete dominance
- phenotype
- polygenic inheritance
- punnet square

#### Lesson 3. DNA and Genetics

Code: C410G0SU05L03

#### **Essential questions**

- What is DNA?
- What is the role of RNA in protein production?
- How do changes in the sequence of DNA affect traits?

- DNA
- mutation
- nucleotide
- replication
- RNA
- transcription
- translation

#### Unit 6. The Environment and Change Over Time

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

#### Lesson 0. The Environment and Change Over Time

**Code:** C410G0SU06L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. Fossil Evidence of Evolution

**Code:** C410G0SU06L01

#### **Essential questions**

- How do fossils form?
- How do scientists date fossils?
- How are fossils evidence of biological evolution?

#### Concepts

- biological evolution
- cast
- extinction
- fossil record
- geologic time scale
- mold
- trace fossil

#### Lesson 2. Theory of Evolution by Natural Selection

#### **Code:** C410G0SU06L02

#### **Essential questions**

- Who do Charles Darwin?
- How does Darwin's theory of evolution by natural selection explain how species change over time?
- How are adaptations evidence of natural selection?

#### Concepts

- adaptation
- camouflage
- mimicry
- natural selection
- naturalist
- selective breeding
- variation

#### Lesson 3. Biological Evidence of Evolution

**Code:** C410G0SU06L03

## **Essential questions**

- What evidence from living species supports the theory that species descended from other species over time?
- How are Earth's organisms related?

- analogous structure
- comparative anatomy
- embryology
- homologous structure
- vestigial structure

#### Unit 7. 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:** C410G0SU07L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. What are Bacteria?

**Code:** C410G0SU07L01

#### **Essential questions**

• What are bacteria?

#### Concepts

- bacterium
- conjugation
- endospore
- fission
- flagellum

#### Lesson 2. Bacteria in Nature

**Code:** C410G0SU07L02

#### **Essential questions**

- How can bacteria affect the environment?
- How can bacteria affect health?

#### Concepts

- antibiotic
- bioremediation
- decomposition
- nitrogen fixation
- pasteurization
- pathogen

#### Lesson 3. What are Viruses?

**Code:** C410G0SU07L03

#### **Essential questions**

- What are viruses?
- How do viruses affect human health?

- antibody
- vaccine
- virus

#### Unit 8. Protists and Fungi

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

#### Lesson 0. Protists and Fungi

**Code:** C410G0SU08L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. What are Protists?

#### **Code:** C410G0SU08L01

#### **Essential questions**

- What are the different types of protists and how do they compare?
- How are protists beneficial?

#### Concepts

- algae
- amoeba
- cilia
- diatom
- paramecium
- protist
- protozoan
- pseudopod

#### Lesson 2. What are Fungi?

**Code:** C410G0SU08L02

#### **Essential questions**

- What are the different types of fungi and how do they compare?
- What are fungi important?
- What are lichens?

- ascus
- basidium
- hyphae
- lichen
- mycelium
- mycorrhiza
- zygosporangia

#### Unit 9. Plant Diversity

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

#### Lesson 0. Plant Diversity

**Code:** C410G0SU09L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. What is a Plant?

#### **Code:** C410G0SU09L01

#### **Essential questions**

- What characteristics are common to all plants?
- What adaptations have enabled plant species to survive Earth's changing environments?
- How are plants classified?

#### Concepts

- cellulose
- cuticle
- producer
- vascular tissue

#### Lesson 2. Seedless Plants

**Code:** C410G0SU09L02

#### **Essential questions**

• How are nonvascular and vascular seedless plants alike, and how are they different?

#### Concepts

- frond
- rhizoid

## Lesson 3. Seed Plants

**Code:** C410G0SU09L03

#### **Essential questions**

- What characteristics are common to seed plants?
- How do other organisms depend on seed plants?
- How are gymnosperms and angiosperms alike, and how are they different?
- What adaptations of flowering plants enable them to survive in diverse environments?

- cambium
- phloem
- stoma
- xylem

#### **Unit 10. Plant Processes and Reproduction**

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

#### Lesson 0. Plant Processes and Reproduction

**Code:** C410G0SU10L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. Energy Processing in Plants

**Code:** C410G0SU10L01

#### **Essential questions**

- How do materials move through plants?
- How do plants perform photosynthesis?
- What is cellular respiration?
- What is the relationship between photosynthesis and cellular respiration?

#### Concepts

- cellular respiration
- photosynthesis

#### Lesson 2. Plant Responses

#### **Code:** C410G0SU10L02

#### **Essential questions**

- How do plants respond to environmental stimuli?
- How do plants respond to chemical stimuli?

#### Concepts

- photoperiodism
- plant hormone
- stimulus
- tropism

#### Lesson 3. Plant Reproduction

Code: C410G0SU10L03

#### **Essential questions**

- What is the alternation of generations in plants?
- How do seedless plants reproduce?
- How do seed plants reproduce?

- alternation of generations
- embryo

- fruit
- ovary
- ovule
- pistil
- pollen grain
- pollination
- seed
- spore
- stamen

#### Unit 11. Animal Diversity

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

## Lesson 0. Animal Diversity

**Code:** C410G0SU11L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

## Lesson 1. What defines an animal?

**Code:** C410G0SU11L01

## **Essential questions**

- What characteristics do all animals have?
- How are animals classified?

## Concepts

- asymmetry
- bilateral symmetry
- invertebrate
- radial symmetry
- vertebrate

## Lesson 2. Invertebrate Phyla

#### **Code:** C410G0SU11L02

#### **Essential questions**

- What are the characteristics of invertebrates?
- How do the invertebrate phyla differ?

#### Concepts

- appendage
- exoskeleton

## Lesson 3. Phylum Chordata

#### **Code:** C410G0SU11L03

## **Essential questions**

- What are the characteristics of all chordates?
- What are the characteristics of all vertebrates?
- How do the classes of vertebrates differ?

- chordate
- notochord

#### Unit 12. Animal Structure and Function

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

## Lesson 0. Animal Structure and Function

Code: C410G0SU12L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

## Lesson 1. Support, Control, and Movement

## **Code:** C410G0SU12L01

## **Essential questions**

- How are the types of support alike, and how are they different?
- How do the types of control compare and contrast?
- How do the types of movement compare and contrast?

#### Concepts

- coelom
- hydrostatic skeleton
- nerve net
- undulation

#### Lesson 2. Circulation and Gas Exchange

#### **Code:** C410G0SU12L02

#### **Essential questions**

- How do the types of gas exchange differ?
- What are the differences between open and closed circulatory systems?

#### Concepts

- closed circulatory system
- diffusion
- gills
- open circulatory system
- spiracle

#### Lesson 3. Digestion and Excretion

**Code:** C410G0SU12L03

#### **Essential questions**

- How are an animal's structures for feeding and digestion related to its diet?
- How do the excretory structures of aquatic and terrestrial animals differ?

- absorption
- crop
- gizzard

#### Unit 13. Animal Behavior and Reproduction

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

## Lesson 0. Animal Behavior and Reproduction

**Code:** C410G0SU13L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

## Lesson 1. Types of Behavior

**Code:** C410G0SU13L01

## **Essential questions**

- How do behaviors help animals maintain homeostasis?
- How are animal behaviors classified?

#### Concepts

- behavior
- conditioning
- hibernation
- imprinting
- innate behavior
- instinct
- migration

#### Lesson 2. Interacting with Others

#### **Code:** C410G0SU13L02

#### **Essential questions**

- How do animals communicate?
- How do animals interact in societies?

#### Concepts

- aggression
- bioluminescence
- pheromone
- society
- territory

#### Lesson 3. Animal Reproduction and Development

**Code:** C410G0SU13L03

#### **Essential questions**

- What are the roles of male and female reproductive organs?
- How do the two types of fertilization differ?
- What are the different types of animal development?

- fertilization
- metamorphosis
- ovary
- sexual reproduction
- testis
- zygote

#### Unit 14. Structure and Movement

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

#### Lesson 0. Structure and Movement

**Code:** C410G0SU14L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. The Skeletal System

**Code:** C410G0SU14L01

#### **Essential questions**

- What does the skeletal system do?
- How do the parts of the skeletal system work together?
- How does the skeletal system interact with each other body system?

#### Concepts

- arthritis
- cartilage
- joint
- ligament
- osteoporosis
- periosteum
- skeletal system

#### Lesson 2. The Muscular System

#### **Code:** C410G0SU14L02

#### **Essential questions**

- What does the muscular system do?
- How do types of muscle differ?
- How does the muscular system interact with each other body systems?

#### Concepts

- cardiac muscle
- involuntary muscle
- muscle
- skeletal muscle
- smooth muscle
- voluntary muscle

#### Lesson 3. The Skin

**Code:** C410G0SU14L03

#### **Essential questions**

- What does the skin do?
- How do the three layers of skin differ?
- How does the skin interact with other body systems?

- bruise
- dermis
- epidermis
- integumentary system
- melanin

#### Unit 15. Digestion and Excretion

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

#### Lesson 0. Digestion and Excretion

**Code:** C410G0SU15L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. Nutrition

**Code:** C410G0SU15L01

#### **Essential questions**

- Why do you eat?
- Why does your body need each of the six groups of nutrients?
- Why is eating a balanced diet important?

#### Concepts

- calorie
- carbohydrate
- fat
- mineral
- protein
- vitamin

#### Lesson 2. The Digestive System

#### **Code:** C410G0SU15L02

#### **Essential questions**

- What does the digestive system do?
- How do the parts of the digestive system interact with other systems?

#### Concepts

- chemical digestion
- chyme
- digestion
- enzyme
- esophagus
- mechanical digestion
- peristalsis
- villi

#### Lesson 3. The Excretory System

**Code:** C410G0SU15L03

## **Essential questions**

- What does the excretory system do?
- How do the parts of the excretory system work together?
- How does the excretory system interact with each other body systems?

- bladder
- excretory system
- kidney
- nephron
- ureter
- urethra
- urine

#### Unit 16. Respiration and Circulation

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

#### Lesson 0. Respiration and Circulation

**Code:** C410G0SU16L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. The Respiratory System

**Code:** C410G0SU16L01

#### **Essential questions**

- What does the respiratory system do?
- How do the parts of the respiratory system work together?
- How does the respiratory system interact with other body systems?

#### Concepts

- alveoli
- breathing
- bronchi
- diaphragm
- larynx
- lungs
- pharynx
- trachea

#### Lesson 2. The Circulatory System

#### **Code:** C410G0SU16L02

#### **Essential questions**

- What does the circulatory system do?
- How do the parts of the circulatory system work together?
- How does the circulatory system interact with other body systems?

- artery
- atherosclerosis
- atrium
- capillary
- coronary circulation
- pulmonary circulation
- systemic circulation
- vein
- ventricle

## Lesson 3. Blood

#### **Code:** C410G0SU16L03

## **Essential questions**

- What does the blood do?
- How do the parts of the blood differ?

## Concepts

- plasma
- platelet
- Rh factor

## Lesson 4. The Lymphatic System

## **Code:** C410G0SU16L04

## **Essential questions**

- What does the lymphatic system do?
- How do the parts of the lymphatic system work together?
- How does the lymphatic system interact with other body systems?

- lymph
- lymph node
- lymphatic system
- spleen
- thymus

#### Unit 17. Immunity and Disease

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

#### Lesson 0. Immunity and Disease

**Code:** C410G0SU17L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. Diseases

**Code:** C410G0SU17L01

#### **Essential questions**

- Why do we get diseases?
- How do the two types of diseases differ?

#### Concepts

- cancer
- infectious disease
- noninfectious disease
- pasteurization
- pathogen
- vector

#### Lesson 2. The Immune System

#### **Code:** C410G0SU17L02

#### **Essential questions**

- What does the immune system do?
- How do the parts of the immune system work together?
- How does the immune system interact with other body systems?

#### Concepts

- active immunity
- allergy
- antibody
- antigen
- B cell
- immunity
- inflammation
- passive immunity
- T cell
- vaccination

#### Lesson 3. Staying Healthy

**Code:** C410G0SU17L03

## **Essential questions**

- How can healthful habits and healthful choices affect disease?
- How do sanitation practices affect human health?
- How can chemicals affect the human body?

- antibiotic
- chemotherapy

#### Unit 18. Control and Coordination

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

#### Lesson 0. Control and Coordination

**Code:** C410G0SU18L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. The Nervous System

**Code:** C410G0SU18L01

#### **Essential questions**

- What does the nervous system do?
- How do the parts of the nervous system work together?
- How does the nervous system interact with other body systems?

#### Concepts

- brain stem
- central nervous system
- cerebellum
- cerebrum
- nervous system
- neuron
- peripheral nervous system
- reflex
- stimulus
- spinal cord
- synapse

#### Lesson 2. The Senses

**Code:** C410G0SU18L02

#### **Essential questions**

- How do you learn about your environment?
- What is the role of the senses in maintaining homeostasis?

#### Concepts

- eardrum
- receptor
- retina
- sensory system

#### Lesson 3. The Endocrine System

**Code:** C410G0SU18L03

## **Essential questions**

- What does the endocrine system do?
- How does the endocrine system interact with other body systems?

- endocrine system
- hormone
- negative feedback
- positive feedback

#### **Unit 19. Reproduction and Development**

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

#### Lesson 0. Reproduction and Development

**Code:** C410G0SU19L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. The Reproductive System

**Code:** C410G0SU19L01

#### **Essential questions**

- What does the reproductive system do?
- How do the parts of the male reproductive system work together?
- How do the parts of the female reproductive system work together?
- How does the reproductive system interact with other body systems?

#### Concepts

- egg
- fertilization
- menstrual cycle
- ovary
- ovulation
- penis
- semen
- sperm
- testis
- vagina

#### Lesson 2. Human Growth and Development

**Code:** C410G0SU19L02

#### **Essential questions**

- What happens during fertilization of a human egg?
- What are the major stages in the development of an embryo and a fetus?
- How do the life stages differ after birth?

- cervix
- embryo
- fetus
- placenta
- pregnancy
- puberty

- umbilical cord
- zygote

#### Unit 20. Matter and Energy in the Environment

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

#### Lesson 0. Matter and Energy in the Environment

**Code:** C410G0SU20L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. Abiotic Factors

**Code:** C410G0SU20L01

#### **Essential questions**

• What are the nonliving parts of the environment?

#### Concepts

- abiotic factor
- atmosphere
- biotic factor
- climate
- ecosystem

#### Lesson 2. Cycles of Matter

**Code:** C410G0SU20L02

#### **Essential questions**

• How does matter move in ecosystems?

#### Concepts

- condensation
- evaporation
- nitrogen fixation
- precipitation

#### Lesson 3. Energy in Ecosystems

**Code:** C410G0SU20L03

#### **Essential questions**

- How does energy move in ecosystems?
- How is the movement of energy in an ecosystem modeled?

- chemosynthesis
- energy pyramid
- food chain
- food web
- photosynthesis

#### **Unit 21. Populations and Communities**

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

#### Lesson 0. Populations and Communities

**Code:** C410G0SU21L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. Populations

**Code:** C410G0SU21L01

#### **Essential questions**

- What defines a population?
- What factors affect the size of a population?

#### Concepts

- biosphere
- biotic potential
- carrying capacity
- community
- competition
- limiting factor
- population
- population density

#### Lesson 2. Changing populations

#### **Code:** C410G0SU21L02

#### **Essential questions**

- How do populations change?
- Why do human populations change?

#### Concepts

- birthrate
- death rate
- endangered species
- extinct species
- migration
- threatened species

#### Lesson 3. Communities

**Code:** C410G0SU21L03

## **Essential questions**

• What defines a community?

• How do the populations in a community interact?

- commensalism
- consumer
- habitat
- mutualism
- niche
- parasitism
- producer
- symbiosis

#### Unit 22. Biomes and Ecosystems

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

#### Lesson 0. Biomes and Ecosystems

**Code:** C410G0SU22L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. Land Biomes

**Code:** C410G0SU22L01

#### **Essential questions**

- How do Earth's land biomes differ?
- How do humans impact land biomes?

#### Concepts

- biome
- desert
- grassland
- taiga
- temperate
- tundra

#### Lesson 2. Aquatic Ecosystems

#### **Code:** C410G0SU22L02

#### **Essential questions**

- How do Earth's aquatic ecosystems differ?
- How do humans impact aquatic ecosystems?

#### Concepts

- coral reef
- estuary
- intertidal zone
- salinity
- wetland

#### Lesson 3. How Ecosystems Change

**Code:** C410G0SU22L03

#### **Essential questions**

- How do land ecosystems change over time?
- How do aquatic ecosystems change over time?

- climax community
- ecological succession

- eutrophication
- pioneer species

#### Unit 23. Using Natural Resources

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

#### Lesson 0. Using Natural Resources

**Code:** C410G0SU23L00

Unit Documents: Lab, Nature of Science, Standardized Test Practice and Study Guide and Review.

#### Lesson 1. Earth's Resources

**Code:** C410G0SU23L01

#### **Essential questions**

- What are natural resources?
- How do the three types of natural resources differ?

#### Concepts

- geothermal energy
- inexhaustible resource
- natural resource
- nonrenewable resource
- renewable resource

#### Lesson 2. Pollution

#### **Code:** C410G0SU23L02

#### **Essential questions**

- How does pollution affect air resources?
- How does pollution affect water resources?
- How does pollution affect land resources?

#### Concepts

- acid precipitation
- global warming
- ozone layer
- photochemical smog
- pollution

#### Lesson 3. Protecting Earth

**Code:** C410G0SU23L03

#### **Essential questions**

- How people monitor resource use?
- How can people conserve resources?

- recycling
- sustainability

