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Introduction

Core Life Science III is one of the three courses in the Core Science III Collection. It is an introductory course that teaches about classification of organisms, reproduction, energy and growth, sensory receptors, ecosystems, interdependence of organisms, adaptation of organisms, social behavior of animals, genetics and heredity, variation in traits, biological evolution, natural selection, and biodiversity. The Course has 18 lessons organized in 5 Units and its learning objectives align with Common Core Science objectives for grades 6 to 8. There are 386 audio-supported instruction pages, 58 printable activity sheet pages, 218 defined vocabulary words, and a set of 270 Quiz and Unit Test questions.

Unit 1: Structures and Processes of Organisms

Lesson 1: Animal and Plant Cells

Common Core Standards

- LS1 From Molecules to Organisms: Structures and Processes
- LS1.A: Structure and Function

Learning Objectives

- to learn about the structure and function of animal cells
- to learn about the structure and function of plant cells

Defined Vocabulary Words

- cell, cell membrane, cellular respiration, cellulose, cell wall, chlorophyll, chloroplasts, cytoplasm, endoplasmic reticulum, membranes, mitochondria, nucleus, organelles, phospholipids, photosynthesis, tubules, vacuoles, vesicles

Activity Type

- Crossword Puzzle
- Interactive Activity: Cell Models

Lesson Components

Total Learning Objects – 41

Instruction Pages - 23

Activity Pages - 3

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 2: Cellular Organization

Common Core Standards

- LS1 From Molecules to Organisms: Structures and Processes
- LS1.A: Structure and Function

Learning Objectives

- to learn about the organization of cells
- to learn about organs and systems in animals
- to learn about organs and systems in plants

Defined Vocabulary Words

- cells, cardiovascular system, circulatory system, connective tissue, digestive system, respiratory system, endocrine system, epithelial tissue, excretory system, glands, immune system, integumentary system, multi-cellular organism, muscle tissue, muscular system, musculoskeletal system, nervous system, nervous tissue, organs, organ systems, plant organs, reproductive plant organs, reproductive system

Activity Type

- Match the description with the correct organ system.
- Interactive Activity: What's In a Worm? - dissect an earthworm to look at its digestive tract.

Lesson Components

Total Learning Objects – 45

Instruction Pages - 27

Activity Pages - 4

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 3: Classification of Organisms

Common Core Standards

- LS1 From Molecules to Organisms: Structures and Processes
- LS1.A: Structure and Function

Learning Objectives

- to learn about the classification of organisms
- to learn about naming conventions for species of organisms
- to learn about single cell and multi-cellular organisms

Defined Vocabulary Words

- archaeobacteria, animalia kingdom, binomial nomenclature, classification, colony, domain, eubacteria, euglena, eukaryote organism, fungi, kingdoms, monera, parasite, plantae kingdom, prokaryote organism, protista, protozoa, species, taxonomy

Activity Type

- List characteristics of each kingdom. Then draw a representative organism for that kingdom.
- Interactive Activity: The Microscopic World of Organisms - observe microscopic organisms from the Monera, Protista, and Fungi kingdoms.

Lesson Components

Total Learning Objects – 43

Instruction Pages - 25

Activity Pages - 3

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 4: Kingdom Animalia

Common Core Standards

- LS1 From Molecules to Organisms: Structures and Processes
- LS1.A: Structure and Function

Learning Objectives

- to learn about the classification of organisms within the Kingdom Animalia

Defined Vocabulary Words

- amphibians, animalia kingdom, arthropoda, birds, reptilia, chordata, cnidaria, cold-blooded, echinodermata, exoskeleton, fish, invertebrates, mammals, mollusca, porifera, vertebrates, warm-blooded, worms

Activity Type

- Match the correct phyla or class with the characteristic.
- Interactive Activity: Going to the Zoo, Zoo, Zoo - search for a variety of organisms in a zoo of your choice.

Lesson Components

Total Learning Objects – 47

Instruction Pages - 29

Activity Pages - 3

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 5: Kingdom Plantae

Common Core Standards

- LS1 From Molecules to Organisms: Structures and Processes
- LS1.A: Structure and Function

Learning Objectives

- to learn about the classification of organisms within the Kingdom Plantae
- to learn about vascular and non-vascular plants

Defined Vocabulary Words

- angiosperm, botanist, botany, class, family, genus, gymnosperms, kingdom, non-vascular plants, order, phloem, phylum, plantae kingdom, plant phyla, species, spores, spore producer, stature, vascular plants, xylem

Activity Type

- Draw and label the parts of a vascular plant, then answer the questions
- Interactive Activity: Seed Collection - search for seeds from a variety of plants to put into a collection.

Lesson Components

Total Learning Objects – 41

Instruction Pages - 23

Activity Pages - 3

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Unit 2: Growth and Development of Organisms

Lesson 1: Growth and Development of Organisms

Common Core Standards

- LS1 From Molecules to Organisms: Structures and Processes
- LS1.B: Growth and Development of Organisms

Learning Objectives

- to learn sexual and asexual reproduction
- to learn about growth in animals and plants

Defined Vocabulary Words

- animal growth, asexual reproduction, breeding, budding, fission, gametes, germination, plant reproduction, plant growth, pollination, seed, sexual reproduction, species, spore

Activity Type

- Answer the questions.
- Interactive Activity: Flower Dissection

Lesson Components

Total Learning Objects – 39

Instruction Pages - 21

Activity Pages - 3

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 2: Energy Flow in Organisms

Common Core Standards

- LS1 From Molecules to Organisms: Structures and Processes
- LS1.C: Organization for Matter and Energy Flow in Organisms

Learning Objectives

- to learn about the transport of energy in cells and organisms
- to learn about the role of energy in digestion and respiration
- to learn about the processes of photosynthesis, chemosynthesis, fermentation, diffusion, and osmosis

Defined Vocabulary Words

- active transport, aerobic respiration, anaerobic digestion, anaerobic respiration, adenosine triphosphate (ATP), chemosynthesis, diffusion, elimination (excretion), energy, energy of life, fermentation, osmosis, passive transport, photosynthesis, release of energy, transport

Activity Type

- Fill in the blanks.
- Draw and describe each term.
- Interactive Activity: Nut Energy - an experiment to determine which kind of nut contains the most food energy.

Lesson Components

Total Learning Objects – 43

Instruction Pages – 25

Activity Pages - 3

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 3: Information Processing

Common Core Standards

- LS1 From Molecules to Organisms: Structures and Processes
- LS1.D: Information Processing

Learning Objectives

- to learn about the role of sensory receptors and the nervous system in processing information

Defined Vocabulary Words

- autonomic nervous system, central nervous system, memory, nerves, peripheral nervous system, processing information, processing input, reflexes, sensory receptors

Activity Type

- Complete the chart.
- Answer the questions.
- Interactive Activity: Reaction Times

Lesson Components

Total Learning Objects – 39

Instruction Pages – 20

Activity Pages - 4

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Unit 3: Ecosystems

Lesson 1: Ecosystems

Common Core Standards

- LS2 Ecosystems: Interactions, Energy, and Dynamics
- LS2.A Interdependent Relationships in Ecosystems

Learning Objectives

- to learn about the nature and characteristics of ecosystems
- to learn about communities and populations of species and the interdependence of species

Defined Vocabulary Words

- abiotic components, biomes, biosphere, biotic communities, commensalism, communities, ecosystems, geosphere, habitat, hydrosphere, mutualism, niche, parasitism, populations, symbiosis

Activity Type

- Match the term with the definition.
- Interactive Activity: In Search of Lichens

Lesson Components

Total Learning Objects – 39

Instruction Pages - 21

Activity Pages - 3

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 2: Energy Transfer in Ecosystems

Common Core Standards

- LS2 Ecosystems: Interactions, Energy, and Dynamics
- LS2.B Cycles of Matter and Energy Transfer in Ecosystems

Learning Objectives

- to learn about types of energy consumers and energy producers
- to learn about energy transfer via food webs and food chains

Defined Vocabulary Words

- autotrophs, carnivore, consumers (heterotrophs), decomposers, ecosystems, energy pyramid, food chain, food webs, herbivore, heterotrophs, omnivore, producers (autotrophs), trophic level

Activity Type

- Match the term with the definition.
- Interactive Activity: Food Web Around You - observe nature in order to construct a food web to display the complex relationships of various organisms in your ecosystem.

Lesson Components

Total Learning Objects – 39

Instruction Pages - 21

Activity Pages - 3

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 3: Ecosystem Dynamics

Common Core Standards

- LS2 Ecosystems: Interactions, Energy, and Dynamics

- LS2.A Interdependent Relationships in Ecosystems
- LS2.C Ecosystem Dynamics, Functioning, and Resilience

Learning Objectives

- to learn about types of changes to ecosystems and adaptive responses by organisms

Defined Vocabulary Words

- biodiversity, catastrophic events, change in the environment or habitat, dormancy, dynamic ecosystem, ecosystems, eutrophication, hibernation, natural disaster, new species, phototropism, pollute, self-preservation response, sensitivity, stimulus

Activity Type

- Answer the questions.
- Interactive Activity: Phototropism - an experiment to see what phototropism looks like.

Lesson Components

Total Learning Objects – 43

Instruction Pages – 25

Activity Pages - 3

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 4: Social Interactions

Common Core Standards

- LS2 Ecosystems: Interactions, Energy, and Dynamics
- LS2.D Social Interactions and Group Behavior

Learning Objectives

- to learn about colonies and other groups within animal populations and their social organization and impact on individual behavior

Defined Vocabulary Words

- group behavior, hierarchy, packs, populations, signaling behaviors, social insects, social order

Activity Type

- Think of an example of an animal that lives in a group and answer the questions.
- Interactive Activity: Ant Farming - observe the hierarchy of ants by creating an ant farm.

Lesson Components

Total Learning Objects – 36

Instruction Pages – 18

Activity Pages - 3

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Unit 4: Heredity**Lesson 1: Inheritance of Traits**

Common Core Standards

- LS3 Heredity: Inheritance and Variation of Traits
- LS3.A Inheritance of Traits

Learning Objectives

- to learn about the role of chromosomes, genes, and DNA in transferring traits to offspring

Defined Vocabulary Words

- allele, asexual reproduction, chromosomes, DNA, genetic engineering, heredity, mutation, genes, nucleotides, inherited traits, sexual reproduction

Activity Type

- Match the term with the definition.
- Interactive Activity: Asexual Plant Reproduction - grow a new plant from a clipping of another plant.

Lesson Components

Total Learning Objects – 36

Instruction Pages - 18

Activity Pages - 3

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 2: Variation of Traits

Common Core Standards

- LS3 Heredity: Inheritance and Variation of Traits
- LS3.B Variation of Traits

Learning Objectives

- to learn about dominant and recessive traits and the prediction of traits in offspring
- to learn about variation of traits through genetic mutation
- to learn about genetic engineering

Defined Vocabulary Words

- alleles, dominant gene, genetic engineering, genotype, heterozygous, homozygous, mutation, phenotype, Punnett Square, recessive, maternal, paternal, trait

Activity Type

- Match the term with the definition.
- Interactive Activity: Imaginary Offspring - flip a coin to determine which pretend trait will be considered to be dominant and which trait will be considered recessive for an imaginary mother and father. Use a Punnett square to determine the traits the offspring will have.

Lesson Components

Total Learning Objects – 38

Instruction Pages - 20

Activity Pages - 3

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Unit 5: Biological Evolution

Lesson 1: Evidence of Common Ancestry

Common Core Standards

- LS4 Biological Evolution: Unity and Diversity
- LS4.A Evidence of Common Ancestry and Diversity

Learning Objectives

- to learn about biological evolution and common ancestry

Defined Vocabulary Words

- ancestors, biological evolution, comparison of species, descent, diversity of species, fossils, fossil record, sedimentary rock, unity of species

Activity Type

- Answer the questions.
- Interactive Activity: In Search of Fossils

Lesson Components

Total Learning Objects – 36

Instruction Pages – 18

Activity Pages - 3

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 2: Natural Selection

Common Core Standards

- LS4 Biological Evolution: Unity and Diversity
- LS4.B Natural Selection

Learning Objectives

- to learn about changes in populations through natural selection

Defined Vocabulary Words

- adaptation, artificial selection, changes in populations, extinction, mutation, natural selection

Activity Type

- Explain the words and give an example.

- Interactive Activity: Simulating Natural Selection

Lesson Components

Total Learning Objects – 38

Instruction Pages - 18

Activity Pages - 5

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 3: Adaptation

Common Core Standards

- LS4 Biological Evolution: Unity and Diversity
- LS4.C Adaptation

Learning Objectives

- to learn about physical and behavioral adaptations to conditions within a habitat

Defined Vocabulary Words

- behavioral adaptation, biome, habitat, natural selection, physical adaptation, reproductive isolation

Activity Type

- Pick one specific habitat. Then draw and describe one plant and one animal that are able to survive in that habitat. Describe and discuss at least one behavior and one physical adaptation that each organism possesses.
- Interactive Activity: Earthworm Behavior - observe how an earthworm adapts behaviorally to a change in the temperature of its environment.

Lesson Components

Total Learning Objects – 34

Instruction Pages – 16

Activity Pages - 3

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test

Lesson 4: Biodiversity and Humans

Common Core Standards

- PS4.B Electromagnetic Radiation

Learning Objectives

- to learn about the nature and value of biodiversity in ecosystems
- to learn how humans can disrupt the ecological balance within ecosystems

Defined Vocabulary Words

- biodiversity, ecosystems, human disruptions

Activity Type

- Answer the questions.
- Interactive Activity: Dinner Time - explore how changes in the environment influence the richness and abundance of organisms by exploring how the time of day affects the numbers and variety of animals using a bird feeder.

Lesson Components

Total Learning Objects – 37

Instruction Pages - 18

Activity Pages - 4

Quiz Questions – 10 total questions; 5 randomly selected to populate quiz

Test Questions – 50 total questions; 10 total per Lesson of which 3 are randomly selected to populate test