

Standard ID	Standard Text	Edgenuity Lesson Name
TX.112.34.	Biology (One Credit).	
(9-11.1)	Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	
9-11.1 (A)	Demonstrate safe practices during laboratory and field investigations.	Lab: Diffusion Across a Semi-permeable Membrane Lab: Disease Spread Lab: Interdependence of Organisms Lab: Natural Selection Laboratory Safety
9-11.1 (B)	Demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials.	Human Impact on the Environment The Cycles of Matter
(9-11.2)	Scientific processes. The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:	
9-11.2 (A)	Know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section.	Scientific Inquiry
9-11.2 (B)	Know that hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories.	Hypotheses, Theories, and Laws
9-11.2 (C)	Know scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed.	Darwin's Theory Human Health Hypotheses, Theories, and Laws Prokaryotic and Eukaryotic Cells
9-11.2 (D)	Distinguish between scientific hypotheses and scientific theories.	Hypotheses, Theories, and Laws
9-11.2 (E)	Plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology.	Lab: Building Proteins from RNA Lab: Disease Spread

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9-11.2 (E)	Plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology. <i>(Cont'd)</i>	Lab: Diffusion Across a Semi-permeable Membrane Lab: Interdependence of Organisms Lab: Mouse Genetics (One Trait) Lab: Mouse Genetics (Two Traits) Lab: Natural Selection
9-11.2 (F)	Collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as data-collecting probes, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, balances, gel electrophoresis apparatuses, micropipettes, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures.	Collecting and Organizing Data Lab: Disease Spread Lab: Interdependence of Organisms Lab: Mouse Genetics (One Trait) Lab: Mouse Genetics (Two Traits) Lab: Natural Selection
9-11.2 (G)	Analyze, evaluate, make inferences, and predict trends from data.	Analyzing Data and Drawing Conclusions Lab: Disease Spread Lab: Mouse Genetics (One Trait) Lab: Mouse Genetics (Two Traits) Lab: Natural Selection
9-11.2 (H)	Communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.	Lab: Building Proteins from RNA Lab: Diffusion Across a Semi-permeable Membrane Lab: Disease Spread Lab: Interdependence of Organisms Lab: Mouse Genetics (One Trait) Lab: Mouse Genetics (Two Traits) Lab: Natural Selection

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(9-11.3)	Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	
9-11.3 (A)	Analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing.	Assessing Claims and Evidence
9-11.3 (B)	Communicate and apply scientific information extracted from various sources such as current events, published journal articles, and marketing materials.	Applications of DNA Technology Biological Evidence and the Fossil Record Prokaryotic and Eukaryotic Cells
9-11.3 (C)	Draw inferences based on data related to promotional materials for products and services.	Assessing Claims and Evidence
9-11.3 (D)	Evaluate the impact of scientific research on society and the environment.	Applications of DNA Technology Human Health Human Impact on the Environment
9-11.3 (E)	Evaluate models according to their limitations in representing biological objects or events.	Animal and Plant Cells Cell Cycle DNA and RNA Structure Energy Flow in Ecosystems Lab: Natural Selection Prokaryotic and Eukaryotic Cells The Cycles of Matter
9-11.3 (F)	Research and describe the history of biology and contributions of scientists.	Darwin's Theory Genetic Code Human Health Introduction to Genetics Methods of Classification Prokaryotic and Eukaryotic Cells
(9-11.4)	Science concepts. The student knows that cells are the basic structures of all living things with specialized parts that perform specific functions and that viruses are different from cells. The student is expected to:	
9-11.4 (A)	Compare and contrast prokaryotic and eukaryotic cells, including their complexity, and compare and contrast scientific explanations for cellular complexity.	Prokaryotic and Eukaryotic Cells

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9-11.4 (B)	Investigate and explain cellular processes, including homeostasis and transport of molecules.	Animal and Plant Cells Cell Homeostasis Lab: Diffusion Across a Semi-permeable Membrane The Function of Organelles
9-11.4 (C)	Compare the structures of viruses to cells, describe viral reproduction, and describe the role of viruses in causing diseases such as human immunodeficiency virus (HIV) and influenza.	Human Health Viruses
(9-11.5)	Science concepts. The student knows how an organism grows and the importance of cell differentiation. The student is expected to:	
9-11.5 (A)	Describe the stages of the cell cycle, including deoxyribonucleic acid (DNA) replication and mitosis, and the importance of the cell cycle to the growth of organisms.	Genetic Code Meiosis Mitosis
9-11.5 (B)	Describe the roles of DNA, ribonucleic acid (RNA), and environmental factors in cell differentiation.	Cell Differentiation and Specialization Genetic Code
9-11.5 (C)	Recognize that disruptions of the cell cycle lead to diseases such as cancer.	Cell Cycle
(9-11.6)	Science concepts. The student knows the mechanisms of genetics, such as the role of nucleic acids and the principles of Mendelian and non-Mendelian Genetics. The student is expected to:	
9-11.6 (A)	Identify components of DNA, identify how information for specifying the traits of an organism is carried in the DNA, and examine scientific explanations for the origin of DNA.	Biological Evidence and the Fossil Record DNA and RNA Structure Genetic Code
9-11.6 (B)	Recognize that components that make up the genetic code are common to all organisms.	Genetic Code
9-11.6 (C)	Explain the purpose and process of transcription and translation using models of DNA and RNA.	DNA and RNA Structure Lab: Building Proteins from RNA Protein Synthesis

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9-11.6 (D)	Recognize that gene expression is a regulated process.	Cell Differentiation and Specialization
9-11.6 (E)	Identify and illustrate changes in DNA and evaluate the significance of these changes.	DNA Mutations Meiosis
9-11.6 (F)	Predict possible outcomes of various genetic combinations such as monohybrid crosses, dihybrid crosses and non-Mendelian inheritance.	Introduction to Genetics Lab: Mouse Genetics (One Trait) Lab: Mouse Genetics (Two Traits) Laws of Inheritance Non-Mendelian Inheritance Probability of Inheritance
9-11.6 (G)	Recognize the significance of meiosis to sexual reproduction.	Meiosis
(9-11.7)	Science concepts. The student knows evolutionary theory is a scientific explanation for the unity and diversity of life. The student is expected to:	
9-11.7 (A)	Analyze and evaluate how evidence of common ancestry among groups is provided by the fossil record, biogeography, and homologies, including anatomical, molecular, and developmental.	Biological Evidence and the Fossil Record Evolutionary Relationships
9-11.7 (B)	Analyze and evaluate how natural selection produces change in populations, not individuals.	Darwin's Theory Lab: Natural Selection
9-11.7 (C)	Analyze and evaluate how the elements of natural selection, including inherited variation, the potential of a population to produce more offspring than can survive, and a finite supply of environmental resources, result in differential reproductive success.	Darwin's Theory Factors Affecting Biological Diversity Factors Affecting Genetic Variation Lab: Natural Selection
9-11.7 (D)	Analyze and evaluate the relationship of natural selection to adaptation and to the development of diversity in and among species.	Biogeographic Isolation Factors Affecting Biological Diversity

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9-11.7 (E)	Analyze other evolutionary mechanisms, including genetic drift, gene flow, mutation, and recombination.	DNA Mutations Factors Affecting Genetic Variation Meiosis
(9-11.8)	Science concepts. The student knows that taxonomy is a branching classification based on the shared characteristics of organisms and can change as new discoveries are made. The student is expected to:	
9-11.8 (A)	Define taxonomy and recognize the importance of a standardized taxonomic system to the scientific community.	Methods of Classification
9-11.8 (B)	Categorize organisms using a hierarchical classification system based on similarities and differences shared among groups.	Methods of Classification The Kingdoms
9-11.8 (C)	Compare characteristics of taxonomic groups, including archaea, bacteria, protists, fungi, plants, and animals.	The Kingdoms Types of Plants
(9-11.9)	Science concepts. The student knows the significance of various molecules involved in metabolic processes and energy conversions that occur in living organisms. The student is expected to:	
9-11.9 (A)	Compare the functions of different types of biomolecules, including carbohydrates, lipids, proteins, and nucleic acids.	Macromolecules
9-11.9 (B)	Compare the reactants and products of photosynthesis and cellular respiration in terms of energy, energy conversions, and matter.	Cellular Respiration The Process of Photosynthesis
9-11.9 (C)	Identify and investigate the role of enzymes.	Catalysts
(9-11.10)	Science concepts. The student knows that biological systems are composed of multiple levels. The student is expected to:	
9-11.10 (A)	Describe the interactions that occur among systems that perform the functions of regulation, nutrient absorption, reproduction, and defense from injury or illness in animals.	Body Organization The Cardiovascular System The Digestive and Excretory Systems The Endocrine and Exocrine Systems The Immune System The Nervous System

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9-11.10 (A)	Describe the interactions that occur among systems that perform the functions of regulation, nutrient absorption, reproduction, and defense from injury or illness in animals. <i>(Cont'd)</i>	The Reproductive System The Respiratory System
9-11.10 (B)	Describe the interactions that occur among systems that perform the functions of transport, reproduction, and response in plants.	Plant Structures The Life Cycles of Plants
9-11.10 (C)	Analyze the levels of organization in biological systems and relate the levels to each other and to the whole system.	Characteristics of Life Organizational Hierarchy
(9-11.11)	Science concepts. The student knows that biological systems work to achieve and maintain balance. The student is expected to:	
9-11.11 (A)	Summarize the role of microorganisms in both maintaining and disrupting the health of both organisms and ecosystems.	Human Health Lab: Disease Spread
9-11.11 (B)	Describe how events and processes that occur during ecological succession can change populations and species diversity.	Population Size and Structure Succession and Extinction
(9-11.12)	Science concepts. The student knows that interdependence and interactions occur within an environmental system. The student is expected to:	
9-11.12 (A)	Interpret relationships, including predation, parasitism, commensalism, mutualism, and competition among organisms.	Energy Flow in Ecosystems Lab: Interdependence of Organisms Relationships Among Organisms
9-11.12 (B)	Compare variations and adaptations of organisms in different ecosystems.	Biomes
9-11.12 (C)	Analyze the flow of matter and energy through trophic levels using various models, including food chains, food webs, and ecological pyramids.	Energy Flow in Ecosystems

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9-11.12 (D)	Describe the flow of matter through the carbon and nitrogen cycles and explain the consequences of disrupting these cycles.	The Cycles of Matter
9-11.12 (E)	Describe how environmental change can impact ecosystem stability.	Succession and Extinction