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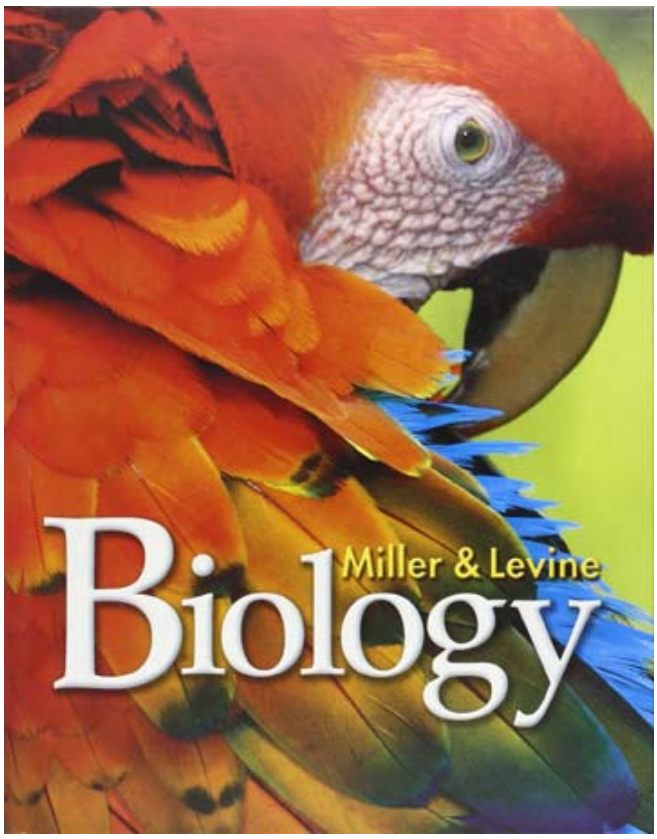

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To the

New York High School Standards
Life Science

Pearson

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New York High School Standards for Life Science

9-12 High School Life Science	
(HS.SF) Structure and Function	
(HS-LS1-1) Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.	**SE/TE:** 48-49, "Proteins 350-353, Lesson 12.3: DNA Replication 362-365, Lesson 13.1: RNA 365, Assessment #1-2 366-370, Lesson 13.2: Ribosomes and Protein Synthesis 388, Assessment #38
(HS-LS1-2) Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. Emphasis is on functions at the organism's system level such as nutrient uptake, water delivery, immune response, and organism response to stimuli. An example of an interacting system could be an artery depending on the proper function of elastic tissue and smooth muscle to regulate and deliver the proper amount of blood within the circulatory system.	**SE/TE:** 214-217, Lesson 7.4: Homeostasis and Cells 217, Assessment #3 221, Assessment # 26 664-668, Lesson 23.1: Specialized Tissues in Plants 827-830, Lesson 28.4: Homeostasis 862-867, Lesson 30.1: Organization of the Human Body 867, Assessment #3
(HS-LS1-3) Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.	**SE/TE:** 673, Figure 23.9: Root Pressure Demonstration 708-714: Lesson 24.3: Plant Hormones 732, "Maintaining Homeostasis" 827-830, Lesson 28.4: Homeostasis 831, Biology & Society: Head for the Hills 967, "Breathing and Homeostasis" 865-867, "Homeostasis" 886, "Control of Kidney Function" 978, "Hormones" 984, "Blood Glucose Regulation" 984, How Science Works: Blood Glucose Regulation 985, "Thyroid and Parathyroid Glands" 986-987, "Control of the Endocrine System"

(HS.MEO) Matter and Energy in Organisms and Ecosystems	
(HS-LS1-5) Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.	**SE/TE:** 230-234, Lesson 8.2: Photosynthesis: An Overview 235-241, Lesson 8.3: The Process of Photosynthesis 253, "Comparing Photosynthesis and Cellular Respiration"
(HS-LS1-6) Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements such as nitrogen, sulfur, and phosphorus to form amino acids and other carbon-based molecules.	**SE/TE:** 45-49, Lesson 2.3: Carbon Compounds 58, Assessment #37
(HS-LS1-7) Use a model to illustrate that aerobic cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.	**SE/TE:** 250-253, Lesson 9.1: Cellular Respiration: An Overview 254-260, Lesson 9.2: The Process of Cellular Respiration 268, Assessment #17 & 21-22
(HS-LS2-3) Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in ecosystems.	**SE/TE:** 69-72, Lesson 3.2: Energy Producers and Consumers 73-77, Lesson 3.3: Energy Flow in Ecosystems 79-86, Lesson 3.4: Cycles of Matter 92, Assessment # 26 & 31
(HS-LS2-4) Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.	**SE/TE:** 77, Trophic Levels and Ecological Pyramids 77, Analyzing Data: the 10 Percent Rule 78, Assessment #2 91, Assessment #17
(HS-LS2-5) Develop a model to illustrate the role of various processes in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.	**SE/TE:** 82-83, "The Carbon Cycle" 92, Assessment # 32

(HS.IRE) Interdependent Relationships in Ecosystems	
(HS-LS2-1) Use mathematical and/or computational representations to support explanations of biotic and abiotic factors that affect carrying capacity of ecosystems at different scales.	**SE/TE:** 130-135, Lesson 5.1: How Populations Grow 137-141, Lesson 5.2: Limits to Growth 142-145, Lesson 5.3 Human Population Growth 447a-447b, Unit 5 Project: The Alpine Chipmunk's Genetic Decline
(HS-LS2-2) Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.	**SE/TE:** 130-135, Lesson 5.1: How Populations Grow 137-141, Lesson 5.2: Limits to Growth 142-145, Lesson 5.3 Human Population Growth 447a-447b, Unit 5 Project: The Alpine Chipmunk's Genetic Decline 161, Figure 6-8: Biological Magnification 166-172, Lesson 6.3 Biodiversity 172, Analyzing Data: Saving the Lion Tamarin 176, Case Study #2: North Atlantic Fisheries 447a-447b, Unit 5 Project: The Alpine Chipmunk's Genetic Decline 1035, Use Mathematical and Computational Thinking
(HS-LS2-6) Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.	**SE/TE:** 64-68, Lesson 3.1: What Is Ecology? 99-104, Lesson 4.2: Niches and Community Interactions 106-109: Lesson 4.3: Succession 124, Assessment #13 125, Solve the Chapter Mystery: The Wolf Effect 130-135, Lesson 5.1: How Populations Grow 137-141, Lesson 5.2: Limits to Growth 1035, Self-Sustaining Habitats

(HS-LS2-7) Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.	**SE/TE:** 61a-61b, Unit 2 Project: Disappearing Muscles 154-157, Lesson 6.1: A Changing Landscape 155, Quick Lab: Reduce, Reuse, Recycle 157, Assessment #1-2 158-165, Lesson 6.2: Using Resources Wisely 165, Assessment #1b &2c 166-172, Lesson 6.3: Biodiversity 173-174, Lesson 6.4: Meeting Ecological Challenges 175, Case Study #1 176, Case Study #2 177-179, Case Study #3 447a-447b, Unit 5 Project: The Alpine Chipmunk's Genetic Decline
(HS-LS2-8) Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce.	**SE/TE:** 840-841, "Behavior and Evolution" 848-849, "Social Behavior" 851, Assessment #2b & 4
(HS.IVT) Inheritance and Variation of Traits	
(HS-LS1-4) Use a model to illustrate cellular division (mitosis) and differentiation.	**SE/TE:** 215, Multicellular Life 282-283, "Mitosis" 284-285, "Cytokinesis" 284, Assessment #2-4 286-290, Lesson 10.3: Regulating the Cell Cycle 292-297, Lesson 10.4: Cell Differentiation 300 Assessment #14, 20 380-382, "Genetic Control of Development
(HS-LS3-1) Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.	**SE/TE:** 367, Quick Lab Guided Inquiry: How Does a Cell Interpret Codons TE Only: 368, Check for Understanding **Supporting content:** 366-367, "The Genetic Code" 368-369: "Translation"
(HS-LS3-2) Make and defend a claim based on evidence that inheritable genetic variations may result from: (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, (3) mutations caused by environmental factors and/or (4) genetic engineering.	**SE/TE:** 372-376, Lesson 13.3: Mutations 418-420, Lesson 15.1: Selective Breeding 482-486, Lesson 17.1: Genes and Variation 558, "Sexual Reproduction and Multicellularity

(HS-LS3-3) Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.	**SE/TE:** 308-312, Lesson 11.1: The Work of Gregor Mendel 313-318, Lesson 11.2: Applying Mendel's Principles 328-329, "Gene Linkage" 394-396, "Variations of Human Traits" 447a-447b, Unit 5 Project: The Alpine Chipmunk's Genetic Decline 482-483, Lesson 17.1: Genes and Variation 487-492, Lesson 17.2: Evolution as Genetic Change in Populations
(HS-LS1-8) Use models to illustrate how human reproduction and development maintains continuity of life.	**SE/TE:** 988-993, Lesson 34.3: The Reproductive System 995-1001, Lesson 34.4: Fertilization and Development
(HS.NS) Natural Selection and Evolution	
(HS-LS4-1) Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.	**SE/TE:** 464, "Common Descent" 465-473, Lesson 16.4: Evidence of Evolution 473, Assessment #1-6 482-483, "Genetics Joins Evolutionary Theory" 498-501, Lesson 17.4: Molecular Evolution 516-522, Lesson 18.2: Modern Evolutionary Classification 522, Assessment #1-3 757-764, Lesson 26.2: Chordate Evolution and Diversity 810-811, "Trends in Nervous System Evolution"
(HS-LS4-2) Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.	**SE/TE:** 460-464, Lesson 16.3, Darwin Presents His Case 472-473, "Natural Selection" 487-489, "How Natural Selection Works"

(HS-LS4-3) Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.	**SE/TE:** 482-486, Lesson 17.1: Genes and Variation 487-492, Lesson 17.2: Evolution as Genetic Change in Populations
(HS-LS4-4) Construct an explanation based on evidence for how natural selection leads to adaptation of populations.	**SE/TE:** 487-492, Lesson 17.2: Evolution as Genetic Change in Populations 492, Assessment #1-4 494-497, Lesson 17.3: The Process of Speciation 497, Assessment #1-4
(HS-LS4-5) Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.	**SE/TE:** 168-170, "Threats to Biodiversity" 487-492, Lesson 17.2: Evolution as Genetic Change in Populations 492, Assessment #1-4 494-497, Lesson 17.3: The Process of Speciation 497, Assessment #1-4 546-548, "Speciation and Extinction"
9-12 High School Engineering Design	
(HS-ETS1) Engineering Design	
(HS-ETS1-1) Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.	**SE/TE:** 175, Case Study #1 176, Case Study #2 177-179, Case Study #3 436-439, Lesson 15.4: Ethics and Impacts of Biotechnology 859a-859b, Unit 8 Project: Body Mechanics
(HS-ETS1-2) Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.	**SE/TE:** 1a-1b, Unit 1 Project: Harnessing the Fear of Water 61a-61b, Unit 2 Project: Disappearing Muscles 187a-187b, Unit 3 Project: Maxed Out Muscles! 571a-571b, Unit 6 Project: A Living Roof 727a-727b, Unit 7 Project: Biomimicry 859a-859b, Unit 8 Project: Body Mechanics

(HS-ETS1-3) Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.	**SE/TE:** 1a-1b, Unit 1 Project: Harnessing the Fear of Water 61a-61b, Unit 2 Project: Disappearing Muscles 175, Case Study #1 176, Case Study #2 177-179, Case Study #3 187a-187b, Unit 3 Project: Maxed Out Muscles! 305a-305b, Unit 4 Project: Food Fight! 571a-571b, Unit 6 Project: A Living Roof 727a-727b, Unit 7 Project: Biomimicry 859a-859b, Unit 8 Project: Body Mechanics
(HS-ETS1-4) Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.	**SE/TE:** Unit 8 Project, Problem-Based Learning, Body Mechanics, 859a-8759b See also supporting content to use computer simulation: Unit 6 Project, Problem-Based Learning, A Living Roof, 571a-571b Ecosystems: Interactions, Energy, and Dynamics; Self-Sustaining Habitats, Designing Solutions, 1035