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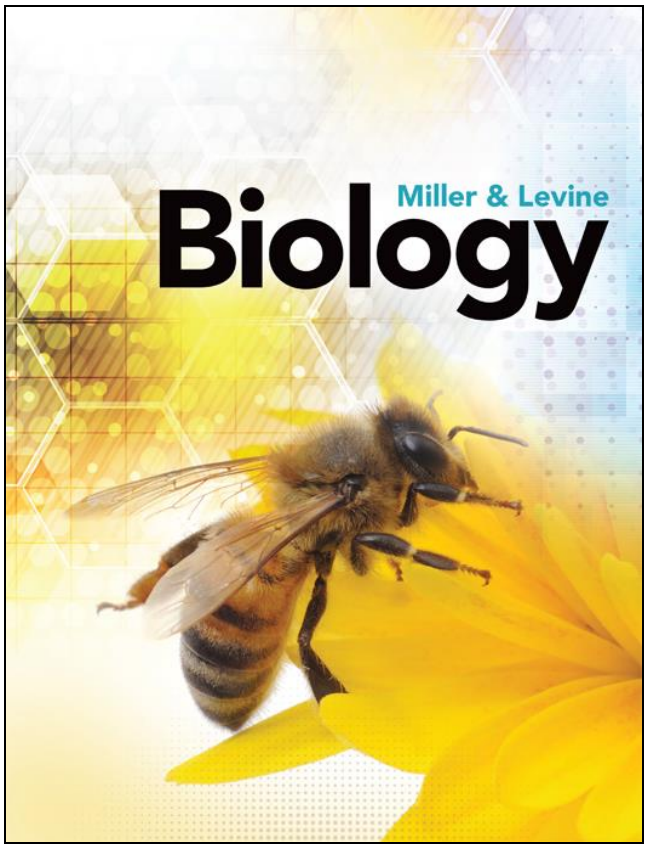

To the

Utah
Science Core Standards
for Biology

Pearson

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Utah Science Core Standards for Biology

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Introduction

This document demonstrates how ***Miller & Levine Biology ©2019*** supports the Utah Science Core Standards for Biology, grades 9-12. Correlation page references are to the Student and Teacher's Editions and cited at the page level.

Renowned Author Team Ken Miller and Joe Levine have created a comprehensive on-level program to inspire students to interact with trusted and up-to-date biology content. The authors' unique storytelling style engages students in biology, with a greater focus on written and visual analogies. This innovative and fresh new program was developed for modern biology classrooms with a focus on STEM integration and 21st century education.

Problem-Based Learning The Problem-Based Learning Strand introduced in each unit opener immerses students in an active learning environment with lab investigations, STEM projects, virtual activities, and authentic readings. When students each the end of the unit, they use their newly acquired scientific knowledge and data to design, test, and evaluate a solution to the presented problem.

Performance-Based Assessment Authentic assessments of STEM learning allow students to demonstrate mastery of the chapter concepts and new standards. All Performance-Based Assessments feature real-world problems and focus on science inquiry, engineering, and STEM practices.

Case Studies Students directly interact with science phenomena in every chapter as they learn about a real-world science problem. Throughout the lessons, students find case study connections in data analysis activities, labs, diagrams, illustrations, and interactivities.

Interactive Learning Students interact with digital art, videos, and animations through interactive prompts or questions, making ***Miller & Levine Biology*** relevant to their lives.

Reading and Study Support *Biology Foundations: Reading and Study Guide Workbook* includes lesson summaries, vocabulary help, and reading tools. Practice focuses on key concepts and science literacy to improve students' understanding of scientific text.

PearsonRealize.com PearsonRealize.com is your online destination for the complete Miller & Levine Biology digital curriculum. A single sign-on provides access to biology content, assessments, resources, management tools, and real-time student data. Realize directly syncs with providers such as Google® and OpenEd to provide a seamless digital experience.

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Science Benchmark	
Ecosystems are shaped by interactions among living organisms and their physical environment. Ecosystems change constantly, either staying in a state of dynamic balance or shifting to a new state of balance. Matter cycles in ecosystems, and energy flows from outside sources through the system. Humans are part of ecosystems and can deliberately or inadvertently alter an ecosystem.	
STANDARD 1: Students will understand that living organisms interact with one another and their environment.	
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Cells are the basic unit of life. All living things are composed of one or more cells that come from preexisting cells. Cells perform a variety of functions necessary to maintain homeostasis and life. The structure and function of a cell determines the cell's role in an organism. Living cells are composed of chemical elements and molecules that form large, complex molecules. These molecules form the basis for the structure and function of cells.	
STANDARD 2: Students will understand that all organisms are composed of one or more cells that come from preexisting cells, are made of molecules, and perform life functions.	
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Science Benchmark	
Structure relates to function. Organs and organ systems function together to provide homeostasis in organisms. The functioning of organs depends upon multiple organ systems.	
STANDARD 3: Students will understand the relationship between structure and function of organs and organ systems.	
Objective 1: Describe the structure and function of organs.	
a. Diagram and label the structure of the primary components of representative organs in plants and animals (e.g., heart - muscle tissue, valves and chambers; lung - trachea, bronchial, alveoli; leaf - veins, stomata; stem - xylem, phloem, cambium; root - tip, elongation, hairs; skin - layers, sweat glands, oil glands, hair follicles; ovaries - ova, follicles, corpus luteum).	**SE/TE:** 726, Exploration Lab: Comparing Adaptations of Ferns and Mosses 740, Quick Lab: What is the Structure of a Flower? 757, Chapter 22 Assessment #21 762-765, Plant Tissue Systems 775, Lesson Review #8 794, Chapter 23 Assessment #2 **TE Only:** 873, Interactivity: Vertebrate Brains
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Science Benchmark	
Information passed from parent to offspring is coded in DNA (deoxyribonucleic acid) molecules. The fundamental DNA structure is the same for all living things; the sequence of DNA differs between each organism and each species. Changes in the DNA sequence may alter genetic expression. The genetic information in DNA provides the instructions for assembling protein molecules in cells. The code used is virtually the same for all organisms. There are predictable patterns of inheritance. Sexual reproduction increases the genetic variation of a species. Asexual reproduction produces offspring that have the same genetic code as the parent.	
STANDARD 4: Students will understand that genetic information coded in DNA is passed from parents to offspring by sexual and asexual reproduction. The basic structure of DNA is the same in all living things. Changes in DNA may alter genetic expression.	
Objective 1: Compare sexual and asexual reproduction.	
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Science Benchmark	
Evolution is central to modern science's understanding of the living world. The basic idea of biological evolution is that Earth's present day species developed from earlier species. Evolutionary processes allow some species to survive with little or no change, some to die out altogether, and other species to change, giving rise to a greater diversity of species. Science distinguishes itself from other ways of knowing and from other bodies of knowledge through the use of empirical standards, logical arguments, and skepticism, as science strives for explanations of the world.	
STANDARD 5: Students will understand that biological diversity is a result of evolutionary processes.	
Objective 1: Relate principles of evolution to biological diversity.	
a. Describe the effects of environmental factors on natural selection.	**SE/TE:** 392, Genes and the Environment 456, Environmental Influences 460, Mutagens 565-567, Testing Natural Selection 592-595, The Process of Speciation

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Objective 3: Classify organisms into a hierarchy of groups based on similarities that reflect their evolutionary relationships.	
a. Classify organisms using a classification tool such as a key or field guide.	**SE/TE:** 614, Case Study 616, Quick Lab: Guided Inquiry; Using a Dichotomous Key 634-635, Performance-Based Assessment, Build a Cladogram 636-638, Assessment
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