Activate Learning®

MCCRS STANDARDS CORRELATION

Grade 6 Mississippi	
L.6.1 Hierarchical Organization	
L.6.1 Students will demonstrate an understanding that living things range from simple to complex organisms, are organized hierarchically, and function as whole living systems.	**6.6 Cells and Systems: Healing** **7.3 Metabolic Reactions** **7.4 Matter Cycling and Photosynthesis**
L.6.1.1 Use argument supported by evidence in order to distinguish between living and non-living things, including viruses and bacteria.	6.6 Cells and Systems: Healing Lesson 7
L.6.1.2 Obtain and communicate evidence to support the cell theory.	6.6 Cells and Systems: Healing Lesson 1, Lesson 4, Lesson 5, Lesson 6, Lesson 7, Lesson 9, Lesson 10, Lesson 14
L.6.1.3 Develop and use models to explain how specific cellular components (cell wall, cell membrane, nucleus, chloroplast, vacuole, and mitochondria) function together to support the life of prokaryotic and eukaryotic organisms to include plants, animals, fungi, protists, and bacteria (not to include biochemical function of cells or cell part).	6.6 Cells and Systems: Healing Lesson 7, Lesson 9, Lesson 11, Lesson 12, 7.4 Matter Cycling and Photosynthesis Lesson 5, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 11,
L.6.1.4 Compare and contrast different cells in order to classify them as a protist, fungus, plant, or animal.	
L.6.1.5 Provide evidence that organisms are unicellular or multicellular.	6.6 Cells and Systems: Healing Lesson 1, Lesson 4, Lesson 5, Lesson 6, Lesson 7, Lesson 9, Lesson 10, Lesson 14
L.6.1.6 Develop and use models to show relationships among the increasing complexity of multicellular organisms (cells, tissues, organs, organ systems, organisms) and how they serve the needs of the organism.	6.6 Cells and Systems: Healing Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 5, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 12, Lesson 13, Lesson 14 7.3 Metabolic Reactions Lesson 1, Lesson 2, Lesson 4, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 12, Lesson 13, Lesson 14, Lesson 15
L.6.3 Ecology and Interdependence	
L.6.3 Students will demonstrate an understanding of the relationships among survival, environmental changes, and diversity as they relate to the interactions of organisms, populations, and the environment.	**7.4 Matter Cycling and Photosynthesis** **7.5 Ecosystem Dynamics**
L.6.3.1 Use scientific reasoning to explain differences	7.5 Ecosystem Dynamics

between biotic and abiotic factors that demonstrate what living organisms need to survive.	Lesson 1, Lesson 3, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12
L.6.3.2 Develop and use models to describe the levels of organization within ecosystems (species, populations, communities, ecosystems, and biomes).	7.5 Ecosystem Dynamics Lesson 11, Lesson 12, Lesson 13
L.6.3.3 Analyze cause and effect relationships to explore how changes in the physical environment (limiting factors, natural disasters) can lead to population changes within an ecosystem.	7.5 Ecosystem Dynamics Lesson 1, Lesson 3, Lesson 4, Lesson 6, Lesson 8, Lesson 9, Lesson 10, Lesson 13,
L.6.3.4 Investigate organism interactions in a competitive or mutually beneficial relationship (predation, competition, cooperation, or symbiotic relationships).	7.5 Ecosystem Dynamics Lesson 11, Lesson 12,
L.6.3.5 Develop and use food chains, webs, and pyramids to analyze how energy is transferred through an ecosystem from producers (autotrophs) to consumers (heterotrophs, including humans) to decomposers.	7.4 Matter Cycling and Photosynthesis Lesson 12, Lesson 13, Lesson 14, Lesson 15 7.5 Ecosystem Dynamics Lesson 11
L.6.4 Adaptation and Diversity	
L.6.4 Students will demonstrate an understanding of classification tools and models such as dichotomous keys to classify representative organisms based on the characteristics of the kingdoms: Archaebacteria, Eubacteria, Protists, Fungi, Plants, and Animals.	**8.6 Natural Selection and Common Ancestry** **7.4 Matter Cycling and Photosynthesis** **6.6 Cells and Systems**
L.6.4.1 Compare and contrast modern classification techniques (e.g., analyzing genetic material) to the historical practices used by scientists such as Aristotle and Carolus Linnaeus.	

L.6.4.2 Use classification methods to explore the diversity of organisms in kingdoms (animals, plants, fungi, protists, bacteria). Support claims that organisms have shared structural and behavioral characteristics.	8.6 does not address classification methods but Lesson, 2, Lesson 3, Lesson 4, Lesson 5 Lesson 13 addresses how natural selection contributes to shared structural and behavioral characteristics.
L.6.4.3 Analyze and interpret data from observations to describe how fungi obtain energy and respond to stimuli (e.g., bread mold, rotting plant material).	7.4 Matter Cycling and Photosynthesis Lesson 13, Lesson 14
L.6.4.4 Conduct investigations using a microscope or multimedia source to compare the characteristics of protists (euglena, paramecium, amoeba) and the methods they use to obtain energy and move	6.6 Cells and Systems Lesson 10 students investigate one celled organisms

through their environment (e.g., pond water).	
L.6.4.5 Engage in scientific arguments to support claims that bacteria (Archaebacteria and Eubacteria) and viruses can be both helpful and harmful to other organisms and the environment.	7.5 Ecosystems Dynamics and Biodiversity
P.6.6 Motions, Forces, and Energy	
P.6.6 Students will demonstrate an understanding of Newton's laws of motion using real world models and examples.	**8.1 Contact Forces** **8.3 Forces at a Distance** **8.4 Earth in Space**
P.6.6.1 Use an engineering design process to create or improve safety devices (e.g., seat belts, car seats, helmets) by applying Newton's Laws of motion. Use an engineering design process to define the problem, design, construct, evaluate, and improve the safety device.*	8.1 Contact Forces Lesson 1, Lesson 2,Lesson 3, Lesson 4, Lesson 5, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 13, Lesson 16 8.1 Sound Waves Lessons about hitting something harder generates more energy
P.6.6.2 Use mathematical computation and diagrams to calculate the sum of forces acting on various objects.	8.1 Contact Forces Lesson 1, Lesson 2, Lesson 4, Lesson 5, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 13, Lesson 16
P.6.6.3 Investigate and communicate ways to manipulate applied/frictional forces to improve movement of objects on various surfaces (e.g., athletic shoes, wheels on cars).	8.1 Contact Forces Lesson 8, Lesson 9, Lesson 10
P.6.6.4 Compare and contrast magnetic, electric, frictional, and gravitational forces.	8.3 Forces at a Distance Lesson 1, Lesson 2, Lesson 5, Lesson 6, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12 8.4 Earth in Space Lesson 1, Lesson 14, Lesson 15, Lesson 16, Lesson 17 Lesson 1, Lesson 13, Lesson 14, Lesson 15, Lesson 17
P.6.6.5 Conduct investigations to predict and explain the motion of an object according to its position, direction, speed, and acceleration.	8.1 Contact Forces Lesson 1, Lesson 2, Lesson 4, Lesson 5, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 13, Lesson 16
P.6.6.6 Investigate forces (gravity, friction, drag, lift, thrust) acting on objects (e.g., airplane, bicycle helmets). Use data to explain the differences between the forces in various environments.	8.1 Contact Forces Lesson 15 has video showing helmets and uses it in a transfer task 8.4 Earth in Space
P.6.6.7 Determine the relationships between the	8.1 Contact Forces

concepts of potential, kinetic, and thermal energy.	Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 5, Lesson 7, Lesson 10, Lesson 13, Lesson 16 8.3 Forces at a Distance Lesson 1, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 12
E.6.8 Earth and the Universe	
E.6.8 Students will demonstrate an understanding of Earth's place in the universe and the interactions of the solar system (sun, planets, their moons, comets, and asteroids) using evidence from multiple scientific resources to explain how these objects are held in orbit around the Sun because of its gravitational pull.	**8.4 Earth in Space**
E.6.8.1 Obtain, evaluate, and summarize past and present theories and evidence to explain the formation and composition of the universe.	8.4 Earth in Space Lesson 1, Lesson 13, Lesson 14, Lesson 15, Lesson 17
E.6.8.2 Use graphical displays or models to explain the hierarchical structure (stars, galaxies, galactic clusters) of the universe.	8.4 Earth in Space Lesson 1, Lesson 13, Lesson 16, Lesson 17
E.6.8.3 Evaluate modern techniques used to explore our solar system's position in the universe.	8.4 Earth in Space Lesson 1, Lesson 13, Lesson 16, Lesson 17
E.6.8.4 Obtain and evaluate information to model and compare the characteristics and movements of objects in the solar system (including planets, moons, asteroids, comets, and meteors).	8.4 Earth in Space Lesson 1, Lesson 13, Lesson 14, Lesson 15, Lesson 16, Lesson 17
E.6.8.5 Construct explanations for how gravity affects the motion of objects in the solar system and tides on Earth.	8.4 Earth in Space Lesson 1, Lesson 13, Lesson 14, Lesson 15, Lesson 17
E.6.8.6 Design models representing motions within the Sun-Earth-Moon system to explain phenomena observed from the Earth's surface (positions of celestial bodies, day and year, moon phases, solar and lunar eclipses, and tides).	8.4 Earth in Space Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 5, Lesson 6, Lesson 7, Lesson 8, Lesson 12, Lesson 17
E.6.8.7 Analyze and interpret data from the surface features of the Sun (e.g., photosphere, corona, sunspots, prominences, and solar flares) to predict how these features may affect Earth.	

Grade 7 Mississippi	
L.7.3 Ecology and Interdependence	
L.7.3 Students will demonstrate an understanding of the importance that matter cycles between living and nonliving parts of the ecosystem to sustain life on Earth.	7.3 Metabolic Reactions 7.4 Matter Cycling and Photosynthesis **7.5 Ecosystem Dynamics**
L.7.3.1 Analyze diagrams to provide evidence of the importance of the cycling of water, oxygen, carbon, and nitrogen through ecosystems to organisms.	7.4 Matter Cycling and Photosynthesis Lesson 12, Lesson 13, Lesson 14, Lesson 15
L.7.3.2 Analyze and interpret data to explain how the processes of photosynthesis, and cellular respiration (aerobic and anaerobic) work together to meet the needs of plants and animals.	7.4 Matter Cycling and Photosynthesis Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 5, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12, Lesson 15
L.7.3.3 Use models to describe how food molecules (carbohydrates, lipids, proteins) are processed through chemical reactions using oxygen (aerobic) to form new molecules.	7.3 Metabolic Reactions Lesson 1, Lesson 2, Lesson 4, Lesson 5, Lesson 6, Lesson 7, Lesson 10, Lesson 11, Lesson 12, Lesson 13, Lesson 14, Lesson 15 7.4 Matter Cycling and Photosynthesis Lesson 2
L.7.3.4 Explain how disruptions in cycles (e.g., water, oxygen, carbon, and nitrogen) affect biodiversity and ecosystem services (e.g., water, food, and medications) which are needed to sustain human life on Earth.	7.5 Ecosystem Dynamics Lesson 1, Lesson 6, Lesson 13, Lesson 14, Lesson 15, Lesson 16
L.7.3.5 Design solutions for sustaining the health of ecosystems to maintain biodiversity and the resources needed by humans for survival (e.g., water purification, nutrient recycling, prevention of soil erosion, and prevention or management of invasive species).*	7.5 Ecosystem Dynamics Lesson 1, Lesson 3, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12, Lesson 13, Lesson 17, Lesson 18, Lesson 19, Lesson 20
P.7.5 Organization of Matter and Chemical Interactions	
P.7.5A Students will demonstrate an understanding of the physical and chemical properties of matter.	**7.1 Chemical Reactions and Matter: Bath Bombs**
P.7.5A.1 Collect and evaluate qualitative data to describe substances using physical properties (state, boiling/melting point, density, heat/electrical conductivity, color, and magnetic properties).	7.1 Chemical Reactions and Matter: Bath Bombs Lesson 1, Lesson 3, Lesson 4, Lesson 5, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12, Lesson 13

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P.7.5A.2 Analyze and interpret qualitative data to describe substances using chemical properties (the ability to burn or rust).	7.1 Chemical Reactions and Matter: Bath Bombs Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12, Lesson 14
P.7.5A.3 Compare and contrast chemical and physical properties (e.g., combustion, oxidation, pH, solubility, reaction with water).	7.1 Chemical Reactions and Matter: Bath Bombs Lesson 3,
P.7.5B Students will demonstrate an understanding about the effects of temperature and pressure on physical state, molecular motion, and molecular interactions.	6.3 Weather, Climate, and Water Cycling: Storms
P.7.5B.1 Make predictions about the effect of temperature and pressure on the relative motion of atoms and molecules (speed, expansion, and condensation) relative to recent breakthroughs in polymer and materials science (e.g. self-healing protective films, silicone computer processors, pervious/porous concrete).	6.3 Weather, Climate, and Water Cycling: Storms Lesson 2, Lesson 3, Lesson 5, Lesson 6, Lesson 7, Lesson 8
P.7.5B.2 Use evidence from multiple scientific investigations to communicate the relationships between pressure, volume, density, and temperature of a gas.	6.3 Weather, Climate, and Water Cycling: Storms Lesson 2, Lesson 3, Lesson 11, Lesson 12,
P.7.5B.3 Ask questions to explain how density of matter (observable in various objects) is affected by a change in heat and/or pressure.	6.3 Weather, Climate, and Water Cycling: Storms Lesson 2, Lesson 3
P.7.5C Students will demonstrate an understanding of the proper use of the periodic table to predict and identify elemental properties and how elements interact.	7.1 Chemical Reactions and Matter: Bath Bombs
P.7.5C.1 Develop and use models that explain the structure of an atom.	7.1 Chemical Reactions and Matter: Bath Bombs Lesson 1, Lesson 2, Lesson 7, Lesson 10, Lesson 11, Lesson 12, Lesson 14
P.7.5C.2 Use informational text to sequence the major discoveries leading to the current atomic model.	7.1 Chemical Reactions and Matter: Bath Bombs
P.7.5C.3 Collect, organize, and interpret data from investigations to identify and analyze the relationships between the physical and chemical properties of elements, atoms, molecules, compounds, solutions, and mixtures.	7.1 Chemical Reactions and Matter: Bath Bombs Lesson 1, Lesson 4, Lesson 5, Lesson 7, Lesson 10, Lesson 11, Lesson 12, Lesson 14

P.7.5C.4 Predict the properties and interactions of elements using the periodic table (metals, non-metals, reactivity, and conductors).	
P.7.5C.5 Describe concepts used to construct chemical formulas (e.g. CH4, H20) to determine the number of atoms in a chemical formula.	7.1 Chemical Reactions and Matter: Bath Bombs Lesson 11, Lesson 12
P.7.5C.6 Using the periodic table, make predictions to explain how bonds (ionic and covalent) form between groups of elements (e.g., oxygen gas, ozone, water, table salt, and methane).	
P.7.5D Students will demonstrate an understanding of chemical formulas and common chemical substances to predict the types of reactions and possible outcomes of the reactions.	7.1 Chemical Reactions and Matter: Bath Bombs 7.2 Chemical Reactions and Energy
P.7.5D.1 Analyze evidence from scientific investigations to predict likely outcomes of chemical reactions.	7.1 Chemical Reactions and Matter: Bath Bombs Lesson 2, Lesson 5, Lesson 7, Lesson 11, 7.2 Chemical Reactions and Energy Lesson 1, Lesson 3, Lesson 8
P.7.5D.2 Design and conduct scientific investigations to support evidence that chemical reactions (e.g., cooking, combustion, rusting, decomposition, photosynthesis, and cellular respiration) have occurred.	7.1 Chemical Reactions and Matter: Bath Bombs Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12, Lesson 14 7.3 Metabolic Reactions Lesson 2, Lesson 3, Lesson 5, Lesson 6, Lesson 7, Lesson 10, Lesson 11, Lesson 13, Lesson 14, Lesson 15 7.4 Matter Cycling and Photosynthesis Lesson 6, Lesson 7, Lesson 9, Lesson 10, Lesson 11, Lesson 14, Lesson 15
P.7.5D.3 Collect, organize, and interpret data using various tools (e.g., litmus paper, pH paper, cabbage juice) regarding neutralization of acids and bases using common substances.	
P.7.5D.4 Build a model to explain that chemical reactions can store (formation of bonds) or release energy (breaking of bonds).	7.2 Chemical Reactions and Energy (the content learned in specific lessons is utilized throughout this unit to design the solution) Lesson 1, Lesson 2, Lesson 3, Lesson 10
P.7.5E Students will demonstrate an understanding of the law of conservation of mass.	7.1 Chemical Reactions and Matter: Bath Bombs

P.7.5E.1 Conduct simple scientific investigations to show that total mass is not altered during a chemical reaction in a closed system. Compare results of investigations to Antoine-Laurent Lavoisier's discovery of the law of conservation of mass.	7.1 Chemical Reactions and Matter: Bath Bombs Lesson 2, Lesson 6, Lesson 12
P.7.5E.2 Analyze data from investigations to explain why the total mass of the product in an open system appears to be less than the mass of reactants.	7.1 Chemical Reactions and Matter: Bath Bombs Lesson 6
P.7.5E.3 Compare and contrast balanced and unbalanced chemical equations to demonstrate the number of atoms does not change in the reaction.	7.1 Chemical Reactions and Matter: Bath Bombs
E.7.9 Earth's Systems and Cycles	
E.7.9A Students will demonstrate an understanding of how complex changes in the movement and patterns of air and water molecules caused by the sun, winds, landforms, ocean temperatures, and currents in the atmosphere are major determinants of local and global weather patterns.	**6.3 Weather, Climate, and Water Cycling: Storms**
E.7.9A.1 Analyze and interpret weather patterns from various regions to differentiate between weather and climate.	6.3 Weather, Climate, and Water Cycling: Storms Lesson 19, Lesson 21, Lesson 22,
E.7.9A.2 Analyze evidence to explain the weather conditions that result from the relationship between the movement of water and air masses.	6.3 Weather, Climate, and Water Cycling: Storms Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 5, Lesson 9, Lesson 10 Lesson 11, Lesson 12, Lesson 13, Lesson 14, Lesson 15, Lesson 16, Lesson 17m, Lesson 18, Lesson 19, Lesson 20, Lesson 21
E.7.9A.3 Interpret atmospheric data from satellites, radar, and weather maps to predict weather patterns and conditions.	6.3 Weather, Climate, and Water Cycling: Storms Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 5, Lesson 10, Lesson 11, Lesson 12, Lesson 13, Lesson 14, Lesson 15, Lesson 16, Lesson 17, Lesson 18, Lesson 19, Lesson 20, Lesson 21
E.7.9A.4 Construct an explanation for how climate is determined in an area using global and surface features (e.g. latitude, elevation, shape of the land, distance from water, global winds and ocean currents).	6.3 Weather, Climate, and Water Cycling: Storms Lesson 1, Lesson 4, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12, Lesson 13, Lesson 14, Lesson 15, Lesson 16, Lesson 17, Lesson 18, Lesson 19, Lesson 20, Lesson 21, Lesson 22
E.7.9A.5 Analyze models to explain the cause and effect relationship between solar energy and convection and the resulting weather patterns and climate conditions.	6.3 Weather, Climate, and Water Cycling: Storms Lesson 4, Lesson 5 7.6 Earth's Resources and Human Impact Lesson 2, Lesson 3, Lesson 4

E.7.9A.6 Research and use models to explain what type of weather (thunderstorms, hurricanes, and tornadoes) results from the movement and interactions of air masses, high and low pressure systems, and frontal boundaries.	6.3 Weather, Climate, and Water Cycling: Storms Lesson 10, Lesson 13, Lesson 14
E.7.9A.7 Interpret topographic maps to predict how local and regional geography affect weather patterns and make them difficult to predict.	6.3 Weather, Climate, and Water Cycling: Storms Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 5, Lesson 10, Lesson 11, Lesson 12, Lesson 13, Lesson 14, Lesson 15, Lesson 16, Lesson 17, Lesson 18, Lesson 19, Lesson 20, Lesson 21
E.7.9B Students will demonstrate an understanding of the relationship between natural phenomena, human activity, and global climate change.	7.6 Earth's Resources and Human Impact
E.7.9B.1 Read and evaluate scientific or technical information assessing the evidence and bias of each source to explain the causes and effects of climate change.	7.6 Earth's Resources and Human Impact Lesson 1, Lesson 2, Lesson 4, Lesson 4, Lesson 7, Lesson 8, Lesson 10, Lesson 11, Lesson 12, Lesson 13, Lesson 14, Lesson 15, Lesson 16, Lesson 17, Lesson 18
E.7.9B.2 Interpret data about the relationship between the release of carbon dioxide from burning fossil fuels into the atmosphere and the presence of greenhouse gases.	7.6 Earth's Resources and Human Impact Lesson 1, Lesson 7, Lesson 8, Lesson 9, Lesson 14, Lesson 17
E.7.9B.3 Engage in scientific argument based on current evidence to determine whether climate change happens naturally or is being accelerated through the influence of man.	7.6 Earth's Resources and Human Impact
E.7.9C Students will demonstrate an understanding that the seasons are the direct result of the Earth's tilt and the intensity of sunlight on the Earth's hemispheres.	8.4 Earth in Space
E.7.9C.1 Construct models and diagrams to illustrate how the tilt of Earth's axis results in differences in intensity of sunlight on the Earth's hemispheres throughout the course of one full revolution around the Sun.	8.4 Earth in Space Lesson 1, Lesson 3, Lesson 4, Lesson 5
E.7.9C.2 Investigate how variations of sunlight intensity experienced by each hemisphere (to include the equator and poles) create the four seasons.	8.4 Earth in Space Lesson 1, Lesson 4, Lesson 5

Grade 8 Mississippi	
L.8.2 Reproduction and Heredity	
L.8.2A Students will demonstrate an understanding of how sexual reproduction results in offspring with genetic variation while asexual reproduction results in offspring with identical genetic information.	**8.5 Genetics**
L.8.2A.1 Obtain and communicate information about the relationship of genes, chromosomes, and DNA, and construct explanations comparing their relationship to inherited characteristics.	8.5 Genetics Lesson 1, Lesson 2, Lesson 5, Lesson 6, Lesson 14
L.8.2A.2 Create a diagram of mitosis and explain its role in asexual reproduction, which results in offspring with identical genetic information.	8.5 Genetics Lesson 1, Lesson 5, Lesson 13, Lesson 14
L.8.2A.3 Construct explanations of how genetic information is transferred during meiosis.	8.5 Genetics Lesson 14: Several different methods of asexual reproduction all result in genetically identical offspring.
L.8.2A.4 Engage in discussion using models and evidence to explain that sexual reproduction produces offspring that have a new combination of genetic information different from either parent.	8.5 Genetics Lesson 1, Lesson 2, Lesson 5, Lesson 6, Lesson 8, Lesson 10, Lesson 13, Lesson 16
L.8.2A.5 Compare and contrast advantages and disadvantages of asexual and sexual reproduction.	8.5 Genetics Lesson 1, Lesson 5, Lesson 13, Lesson 14
L.8.2B Students will demonstrate an understanding of the differences in inherited and acquired characteristics and how environmental factors (natural selection) and the use of technologies (selective breeding, genetic engineering) influence the transfer of genetic information.	8.5 Genetics
L.8.2B.1 Construct an argument based on evidence for how environmental and genetic factors influence the growth of organisms.	8.5 Genetics Lesson 13, Lesson 14, Lesson 15, Lesson 16, Lesson 17
L.8.2B.2 Use various scientific resources to research and support the historical findings of Gregor Mendel to explain the basic principles of heredity.	Basic principals of heredity addressed in 8.5 Genetics Lesson 1, Lesson 2, Lesson 5, Lesson 6, Lesson 8, Lesson 10, Lesson 13, Lesson 16
L.8.2B.3 Use mathematical and computational	8.5 Genetics

thinking to analyze data and make predictions about the outcome of specific genetic crosses (monohybrid Punnett Squares) involving simple dominant/recessive traits.	Lessons 7, Lesson 8, Lesson 9, Lesson 10
L.8.2B.4 Debate the ethics of artificial selection (selective breeding, genetic engineering) and the societal impacts of humans changing the inheritance of desired traits in organisms.	8.6 Natural Selection and Common Ancestry Lesson 1, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12, Lesson 13, Lesson 14, Lesson 15
L.8.2C Students will demonstrate an understanding that chromosomes contain many distinct genes and that each gene holds the instructions for the production of a specific protein, which in turn affects the traits of an individual.	**8.5 Genetics**
L.8.2C.1 Communicate through diagrams that chromosomes contain many distinct genes and that each gene holds the instructions for the production of specific proteins, which in turn affects the traits of the individual (not to include transcription or translation).	8.5 Genetics Lesson 5, Lesson 6, Lesson 7, Lesson 8, Lesson 13, Lesson 16
L.8.2C.2 Construct scientific arguments from evidence to support claims about the potentially harmful, beneficial, or neutral effects of genetic mutations on organisms.	8.5 Genetics Lesson 8, Lesson 9, Lesson 16
L.8.4 Adaptation and Diversity	
L.8.4A Students will demonstrate an understanding of the process of natural selection, in which variations in a population increase some individuals' likelihood of surviving and reproducing in a changing environment.	**8.5 Genetics** **8.6 Natural Selection and Common Ancestry**
L.8.4A.1 Use various scientific resources to analyze the historical findings of Charles Darwin to explain basic principles of natural selection.	8.6 Natural Selection and Common Ancestry Lesson 1, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12, Lesson 13, Lesson 14, Lesson 15
L.8.4A.2 Investigate to construct explanations about natural selection that connect growth, survival, and reproduction to genetic factors, environmental factors, food intake, and interactions with other organisms.	8.5 Genetics Lesson 1, Lesson 2, Lesson 5, Lesson 6, Lesson 8, Lesson 10, Lesson 13, , Lesson 14, Lesson 16 8.6 Natural Selection and Common Ancestry Lesson 1, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12, Lesson 13, Lesson 14, Lesson 15
L.8.4B Students will demonstrate an understanding of how similarities and differences	**8.5 Genetics** **8.6 Natural Selection and Common Ancestry**

among living and extinct species provide evidence that changes have occurred in organisms over time and that similarity of characteristics provides evidence of common ancestry.	
L.8.4B.1 Analyze and interpret data (e.g. pictures, graphs) to explain how natural selection may lead to increases and decreases of specific traits in populations over time.	8.6 Natural Selection and Common Ancestry Lesson 1, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12, Lesson 13, Lesson 14, Lesson 15
L.8.4B.2 Construct written and verbal explanations to describe how genetic variations of traits in a population increase some organisms' probability of surviving and reproducing in a specific environment.	8.6 Natural Selection and Common Ancestry Lesson 1, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12, Lesson 13, Lesson 14, Lesson 15
L.8.4B.3 Obtain and evaluate scientific information to explain that separated populations, that remain separated, can evolve through mutations to become a new species (speciation).	8.5 Genetics Lesson 5, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 13, Lesson 16
L.8.4B.4 Analyze displays of pictorial data to compare and contrast embryological and omologous/analogous structures across multiple species to identify evolutionary relationships.	8.5 Genetics Lesson 1, Lesson 5, Lesson 13, Lesson 14
P.8.6 Motions, Forces, and Energy	
P.8.6 Students will demonstrate an understanding of the properties, behaviors, and application of waves.	**6.1 Light and Matter: One Way Mirror** **8.2 Sound Waves** **8.4 Earth in Space**
P.8.6.1 Collect, organize, and interpret data about the characteristics of sound and light waves to construct explanations about the relationship between matter and energy.	8.2 Sound Waves Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 5, Lesson 6, Lesson 10, Lesson 11, Lesson 13, Lesson 14
P.8.6.2 Investigate research-based mechanisms for capturing and converting wave energy (frequency, amplitude, wavelength, and speed) into electrical energy.	
P.8.6.3 Conduct simple investigations about the performance of waves to describe their behavior (e.g., refraction, reflection, transmission, and absorption) as they interact with various materials (e.g., lenses, mirrors, and prisms).	6.1 Light and Matter: One Way Mirror Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 5, Lesson 6, Lesson 7, Lesson 8
P.8.6.4 Use scientific processes to plan and conduct controlled investigations to conclude sound is a wave phenomenon that is characterized by amplitude and frequency.	8.2 Sound Waves Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 5, Lesson 6, Lesson 10, Lesson 11, Lesson 13, Lesson 14

P.8.6.5 Conduct scientific investigations that describe the behavior of sound when resonance changes (e.g., waves in a stretched string and design of musical instruments).	8.2 Sound Waves Lesson 2, Lesson 3, Lesson 4,
P.8.6.6 Obtain and evaluate scientific information to explain the relationship between seeing color and the transmission, absorption, or reflection of light waves by various materials.	6.1 Light and Matter: One Way Mirror Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 5, Lesson 6, Lesson 7, Lesson 8 8.4 Earth in Space Lesson 10, Lesson 11
P.8.6.7 Research the historical significance of wave technology to explain how digitized tools have evolved to encode and transmit information (e.g., telegraph, cell phones, and wireless computer networks).	
P.8.6.8 Compare and contrast the behavior of sound and light waves to determine which types of waves need a medium for transmission.	8.2 Sound Waves Lesson 1, Lesson 2, Lesson 3, Lesson 5, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12, Lesson 14
E.8.7 Earth's Structure and History	
E.8.7 Students will demonstrate an understanding of geological evidence to analyze patterns in Earth's major events, processes, and evolution in history.	**8.6 Natural Selection and Common Ancestry**
E.8.7.1 Use scientific evidence to create a timeline of Earth's history that depicts relative dates from index fossil records and layers of rock (strata).	6.4 Plate Tectonics and Rock Cycling Lesson 10, Lesson 11, Lesson 13, Lesson 14
E.8.7.2 Create a model of the processes involved in the rock cycle and relate it to the fossil record.	8.6 Natural Selection and Common Ancestry Lesson 1, Lesson 2, Lesson 3, Lesson 5, Lesson 6, Lesson 12, Lesson 13, Lesson 14
E.8.7.3 Construct and analyze scientific arguments to support claims that most fossil evidence is an indication of the diversity of life that was present on Earth and that relationships exist between past and current life forms.	8.6 Natural Selection and Common Ancestry Lesson 1, Lesson 2, Lesson 3, Lesson 5, Lesson 6, Lesson 12, Lesson 13, Lesson 14
E.8.7.4 Use research and evidence to document how evolution has been shaped both gradually and through mass extinction by Earth's varying geological conditions (e.g., climate change, meteor impacts, and volcanic eruptions).	8.6 Natural Selection and Common Ancestry Lesson 1, Lesson 2, Lesson 3, Lesson 5, Lesson 6, Lesson 12, Lesson 13, Lesson 14
E.8.9 Earth's Systems and Cycles	
E.8.9A Students will demonstrate an	**6.4 Plate Tectonics & Rock Cycling**

understanding that physical processes and major geological events (e.g., plate movement, volcanic activity, mountain building, weathering, erosion) are powered by the Sun and the Earth's internal heat and have occurred over millions of years.	**6.5 Natural Hazards**
E.8.9A.1 Investigate and explain how the flow of Earth's internal energy drives the cycling of matter through convection currents between Earth's surface and the deep interior causing plate movements.	**6.4 Plate Tectonics & Rock Cycling** Lesson 8
E.8.9A.2 Explore and debate theories of plate tectonics to form conclusions about past and current movements of rocks at Earth's surface throughout history.	**6.4 Plate Tectonics & Rock Cycling** Lesson 3, Lesson 4, Lesson 5, Lesson 6, Lesson 7, Lesson 10, Lesson 11, Lesson 14
E.8.9A.3 Map land and water patterns from various time periods and use rocks and fossils to report evidence of how Earth's plates have moved great distances, collided, and spread apart.	6.4 Plate Tectonics and Rock Cycling Lesson 3, Lesson 4, Lesson 5, Lesson 6, Lesson 7, Lesson 10, Lesson 11, Lesson 14
E.8.9A.4 Research and assess the credibility of scientific ideas to debate and discuss how Earth's constructive and destructive processes have changed Earth's surface at varying time and spatial scales.	6.4 Plate Tectonics and Rock CyclingLesson 1, Lesson 2, Lesson 5, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 10, Lesson 11, Lesson 12, Lesson 13, Lesson 14
E.8.9A.5 Use models that demonstrate convergent and divergent plate movements that are responsible for most landforms and the distribution of most rocks and minerals within Earth's crust.	6.4 Plate Tectonics and Rock Cycling Lesson 6
E.8.9A.6 Design and conduct investigations to evaluate the chemical and physical processes involved in the formation of soils.	
E.8.9A.7 Explain the interconnected relationship between surface water and groundwater.	6.3 Weather, Climate, and Water Cycling: Storms
E.8.9B Students will demonstrate an understanding of natural hazards (volcanic eruptions, severe weather, earthquakes) and construct explanations for why some hazards are predictable and others are not.	6.5 Natural Hazards
E.8.9B.1 Research and map various types of natural hazards to determine their impact on society.	6.5 Natural Hazards Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 5, Lesson 6, Lesson 9, Lesson 10
E.8.9B.2 Compare and contrast technologies that predict natural hazards to identify which types of technologies are most effective.	6.5 Natural Hazards Lesson 1, Lesson 2, Lesson 3, Lesson 4, Lesson 5, Lesson 6, Lesson 7, Lesson 8, Lesson 9, Lesson 10

E.8.9B.3 Using an engineering design process, create mechanisms to improve community resilience, which safeguard against natural hazards (e.g., building restrictions in flood or tidal zones, regional watershed management, Firewise construction).*	6.5 Natural Hazards Lesson 1, Lesson 5, Lesson 6, Lesson 7, Lesson 8, Lesson 9
E.8.10 Earth's Resources	
E.8.10 Students will demonstrate an understanding that a decrease in natural resources is directly related to the increase in human population on Earth and must be conserved.	**7.6 Earth's Resources and Human Impact**
E.8.10.1 Read and evaluate scientific information about advancements in renewable and nonrenewable resources. Propose and defend ways to decrease national and global dependency on nonrenewable resources.	7.6 Earth's Resources and Human Impact Lesson 1, Lesson 10, Lesson 15
E.8.10.2 Create and defend a proposal for reducing the environmental effects humans have on Earth (e.g., population increases, consumer demands, chemical pollution, deforestation, and change in average annual temperature).	7.6 Earth's Resources and Human Impact Lesson 10, Lesson 15
E.8.10.3 Using scientific data, debate the societal advantages and disadvantages of technological advancements in renewable energy sources.	7.6 Earth's Resources and Human Impact Lesson 13, Lesson 14, Lesson 15, Lesson 16, Lesson 17, Lesson 18
E.8.10.4 Using an engineering design process, develop a system to capture and distribute thermal energy that makes renewable energy more readily available and reduces human impact on the environment (e.g., building solar water heaters, conserving home energy).*	7.6 Earth's Resources and Human Impact Lesson 13, Lesson 14, Lesson 15, Lesson 16, Lesson 17, Lesson 18