

<b>Grade 7 Spiraled Science</b>						
<b>Content/Topic/Theme</b>	<b>PA Core Eligible Content</b>	<b>Materials</b>	<b>Strategy/Activity</b>	<b>Pacing (# of days)</b>	<b>Formative Assessment</b>	<b>Summative Assessment</b>
<b>Structure and Function of Organisms</b>	<b>S7.B.1.1: Describe and compare structural and functional similarities and differences that characterize diverse living things.</b>					
	S7.B.1.1.1: Describe levels of biological organization from cell to organism.	PP presentation; textbook; internet resources	Review of cells/organisms/ecosystems (biotic/abiotic); Drawing/slides of the organization of MCTOOOPCE	2 days	Google slides presentation	
	S7.B.1.1.2: Describe how specific structures in living things (from cell to organism) help them function effectively in specific ways (e.g., chlorophyll in plant cells— photosynthesis; root hairs—increased surface area; beak structures in birds— food gathering; cacti spines—protection from predators).	Prepared slides of specialized cells	Making predictions of what cells look like; Observe slides of cells; Human drawing with cells;	1 weeks	Group body drawings and conclusion questions	Quiz
		<a href="#">Intro Video</a>	<u>Cell Structure and Function</u>			
Taxonomy; moved to ecology(6 Kingdoms, phylum; class, order; family, genus, species)	S7.B.1.1.3: Explain how characteristic similarities and differences (from cell to organism) are used to identify and/or categorize organisms.		Inquiry based Everyday Item Card Sort; Classify it app; Taxonomy mnemonic creation		introductory card sort	poster/brochure project
	<b>S7.B.1.2: Compare methods of reproduction.</b>					
	S7.B.1.2.1: Explain how cells arise from the division of a pre-existing cell.	Websites; graphic organizers	Brainstorm mitosis activity; twizzler mitosis activity; drawing mitosis; interactive labs	7-10 days	drawings & lab	

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	S7.B.1.2.2: Compare various basic sexual and asexual reproductive processes (e.g., budding, cuttings).	websites; graphic organizers	Vocabulary activity; venn diagram; interactive lab;	1 week	lab	card sorting activity
	S7.B.1.2.3: Explain why the life cycles of different organisms have varied lengths.	website	Telomere activity	2 days	Questions on Telomere activity	
<b>Continuity of Life</b>	<b>S7.B.2.1: Explain natural selection and its role in evolution.</b>					
	S7.B.2.1.1: Explain how inherited traits (genes) and/or behaviors help organisms survive and reproduce in different environments.	website; worksheet	Categorizing activity	1 day	Categorizing activity	
	S7.B.2.1.2: Describe how natural selection is an underlying factor in a population's ability to adapt to change.	PP slides; websites; lab worksheets	Darwin's Finches/Journal; Peppered Moth Simulation; Natural Selection Lab	1 week	Darwin's Journal	
	S7.B.2.1.3: Explain that adaptations within species (physical, behavioral, physiological) are developed over long periods of time	website	Darwin's Game of Survival			
	<b>S7.B.2.2: Explain how a set of genetic instructions determines inherited traits of organisms.</b>					
	S7.B.2.2.1: Identify and explain differences between inherited and acquired traits.	website; worksheet	acquired or. inherited slides; classmate trait investigation	2 days		

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	S7.B.2.2.2: Recognize evidence that the gene is the basic unit of inheritance and explain the effect of dominant and recessive genes on inherited traits.	websites; worksheets; strawberries; dish soap; petri dishes; alcohol;	create a baby lab; strawberry DNA lab; principles of genetics notes and vocab; Bug builder lab; sex linked traits virtual lab; blood typing; Mendelian genetics lab	2 weeks	baby lab	
	S7.B.2.2.3: Explain how mutations can alter a gene and are a source of new variations in a population.		Dog breeding game; corn/broccoli selective breeding;	2 days	Argument Driven; How do different types of mutation in genes affect the function of an organism (pg. 248	
	S7.B.2.2.4: Describe how selective breeding or biotechnologies can change the genetic makeup of an organism (e.g., domesticated dogs, horses, cows; crops, hybrid plants; integrated pest management).	website; video	Dog breeding game; corn/broccoli selective breeding	2 days		
<b>Ecological Behavior and Systems</b>	<b>S.7.B.3.1: Compare the biotic and abiotic factors of different ecosystems and explain relationships between these factors</b>					
	S.7.B.3.1.1 Describe relationships (e.g., predator/prey competition, symbiosis) between organisms in different ecosystems.		Predator/prey interaction slides; Beans competition activity; Symbiosis presentation with guided notes; Mix and Match ecological relationship (Good Buddies); PBS Shark video clips	3 days		

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	S.7.B.3.1.2 Identify the major biomes (terrestrial and aquatic) and describe their characteristic biotic and abiotic factors	PP	Major Biome Timeshare Sales Pitch;	7-10 days	Gallery Walk Chart	Gallery Walk Quiz/ writing piece
	<b>S.7.B.3.2: Explain ways different variables may cause and/or influence changes in natural or human-made systems</b>					
	S.7.B.3.2.1 Identify and describe factors that cause and/or influence changes in populations (e.g., deforestation, disease, land use, natural disaster, invasive species).		Science journal article jigsaw activity			
	S.7.B.3.2.2 Explain how diversity affects the integrity of natural ecological systems.		Bird Island Investigation		Public Service Announcement to Puerto Rican Officials on Biodiversity: Bird Island	
	S.7.B.3.2.3 Describe how human interactions with the environment impact an ecosystem (e.g., road construction, pollution, urban development, dam building/removal).		Human Impact Webquest;		WebQuest Questions	

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	S7.B.3.2.4 Explain how changes in environmental conditions can affect the survival of a population and entire species (e.g., climate, hibernation, migration, coloration).		Science current event articles on environmental factors: jigsaw activity		Compare/Contrast Venn Diagram	
	<b>S.7.B.3.3: Explain how renewable and nonrenewable resources provide for human needs and how these needs impact the environment</b>		Renewable and Nonrenewable Resource activity: PowerPoint Presentation and popcorn activity			
	S.7.B.3.3.1 Explain how renewable and/or nonrenewable resources provide for human needs (i.e., energy, food, water, clothing, and shelter).		Renewable/Non-Renewable Town Hall Meeting/Debate on Renewable vs. Nonrenewable Resources			
	S.7.B.3.3.2 Explain how the use of renewable and/or nonrenewable resources affects the environment					

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<b>Earth Features and Processes that Change Earth and Its Resources</b>	<b>S7.D.1.1: Describe Earth structures and processes that characterize different biomes on Earth.</b>				
	S7.D.1.1.1: Identify and describe soil characteristics (i.e., particle size, porosity, and permeability) of different biomes.		Assessed in Ecology/Life Sci		
	S7.D.1.1.2: Explain how fossils are formed and how they can provide evidence about plants and animals that once lived on Earth.		Move to 8th based on isolated nature		
	<b>S7.D.1.2: Describe characteristic features and significance of Earth's water systems.</b>				

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	S7.D.1.2.1: Compare the different water systems on Earth (e.g., wetland, watershed, ocean, river).	Rader's 4 kids websites; Chemical Testing kits (Ph, oxygen, phosphates, turbidity, nitrates), 15 sets of hip waders, Meter measuring tapes, nets, ice cube trays, tweezers, plastic bowls, string, plastic balls, large sorting screen; water cycle models;	-Watershed Crumpled Paper Activity; Rivers Scavenger Hunt/Vocab; Whatzup Stream Article; Whatzup Stream? (Delaware River Webquest); Physical/Biological/Chemical Testing of Whiskey Run; Watershed Pollution Model Lab; Bill Nye Wetlands' Importance of Wetlands Activity; Virtual Density Lab; Ocean Current Notes/key terms; Composition of Seawater Lab; Ocean Current Lab;	Exit Ticket, Pre-Lab Quizzes, vocabulary	- Parts of River Quiz; Wetland quiz; Watershed quiz; Freshwater Benchmark
	S7.D.1.2.2: Compare biotic and abiotic features of freshwater and saltwater systems.	See above	Physical/Biological/Chemical Testing of Whiskey Run	Composition of Seawater Lab	Whiskey Run Lab
	S7.D.1.2.3: Describe the importance of water systems on the diversity and distribution of life on Earth.	see above	Physical/Biological/Chemical Testing of Whiskey Run		Whiskey Run Lab
<b>Weather, Climate, and Atmospheric Processes</b>	<b>S7.D.2.1: Explain the basic elements of meteorology.</b>				
	S7.D.2.1.1: Explain the effect of wind patterns, circulation of oceans currents, atmospheric pressure, and temperature on weather.		Heat Transfer Interactive; Reason for the Seasons Activity; Bill Nye Seasons; Global winds flip book	-Global winds quiz	

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	S7.D.2.1.2: Describe changes in atmospheric conditions associated with various weather patterns.		Pressure Systems Webquest; Isobar/Isotherm Mapping Activity		
<b>Composition and Structure of the Universe</b>	<b>S7.D.3.1: Describe the essential ideas about the composition and structure of the universe and Earth's place in it.</b>				
	S7.D.3.1.1: Describe the patterns of Earth's rotation and revolution in relation to the Sun and Moon (i.e., solar eclipse, lunar eclipse, phases of the Moon, and time).		Phases of the moon notes; Phases of the moon cookie lab; tides notes; tides at the jersey shore webquest; eclipses webquest;	Check in quizzes;	Benchmark
	S7.D.3.1.2: Explain how gravity is the essential force in determining the motions of the planets and other objects in the solar system.		Physics 4 kids Gravity webquest; Gravity Physics video		
	S7.D.3.1.3: Compare the properties and conditions of objects in the solar system to those of Earth.		Cosmos 4 kids webquest		
	S7.D.3.1.4: Identify and describe instruments that are used to study the universe (e.g., telescope, probes, satellites, space observatories).		Cosmos 4 kids webquest		



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<b>Structure, Properties, and Interactions of Matter and Energy</b>	<b>S7.C.1.1: Describe the structure of matter and its chemical and physical properties.</b>	STC Book	Matter and Energy Key Terms Activity		
	S.7.C.1.1.1 Use characteristic physical or chemical properties of matter to distinguish one substance from another (e.g., density, freezing/melting points, solubility, ability to rust).		Physical and Chemical Properties of Matter Webquest, Particle Motion Virtual Lab Activity	Particle Motion lab	
	S.7.C.1.1.2 Recognize that the atom is the basic building block for all matter.				
	S.7.C.1.1.3 Explain the differences between elements, compounds, and mixtures.		Elements, Compounds, and Mixtures Activity Stations		
	S.7.C.1.1.4 Describe the relationship between mass and volume as density.	*See Earth & Space	Virtual Density Lab; Composition of Seawater lab	comp of Seawater lab	
	<b>S7.C.1.2: Compare chemical and physical changes of matter.</b>				
moved to 8th grade	S.7.C.1.2.1 Identify the reactants and products of simple chemical reactions (e.g., photosynthesis, cellular respiration).				

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	S.7.C.1.2.2 Compare the behavior of particle motion in solids, liquids, and gasses.		Particle Motion Virtual Lab Activity		
<b>Forms, Sources, Conversions, and Transfer of Energy</b>	<b>S8.C.2.1: Describe energy sources, transfer of energy, or conservation of energy (swapped from 8th grade standards)</b>				
	S8.C.2.1.1 Distinguish among forms of energy (e.g., electrical, mechanical, chemical, light, sound, nuclear) and sources of energy (i.e., renewable and nonrenewable energy)		7 forms of energy card sort		
	S8.C.2.1.2 Explain how energy is transferred from one place to another through convection, conduction, or radiation.	*See Earth & Space	Heat Transfer interactive		
	S8.C.2.1.3 Describe how one form of energy (e.g., electrical, mechanical, chemical, light, sound, nuclear) can be converted into a different form of energy				

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<b>Principle of Motion and Force</b>	<b>S7.C.3.1: Explain the principles of force and motion.</b>		Force and Motion Key Terms Activity		
	S7.C.3.1.1: Describe how unbalanced forces acting on an object change its velocity.		Newton's law Demo; Force Diagrams; Diving Eggs Demo	Force Diagrams	
	S7.C.3.1.2: Describe forces acting on an object (e.g., friction, gravity, balanced versus unbalanced).		Newton's law Demo	Newton's law demo	
	S7.C.3.1.3: Explain the mechanical advantages of simple machines.		Simple Machines Virtual Lab; Ed Head Simple Machines Activity	Questions to go along with virtual lab	