



## 23-24 Grade 7 Science Pacing Guide

4.0 Target	3.0 Target	T1	T2	T3
<b>Chemical Reactions &amp; Matter Transformations:</b> <b>How can we make something new that was not there before?</b>				
Students have multiple ways to demonstrate extension. For more information or to see a scoring rubric, contact your child's teacher.	<b>PS1-1: ATOMIC COMPOSITION MODEL</b> - Develop models to describe the atomic composition of simple molecules and extended structures. (Scale, Proportion, and Quantity) <b>PS1-2: CHEMICAL PROPERTIES AND REACTIONS</b> - Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. (Patterns) <b>PS1-5: CONSERVATION OF ATOMS IN REACTIONS</b> - Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved. (Energy and Matter)"	X		
<b>Chemical Reactions &amp; Energy:</b> <b>How can we use chemical reactions to design a solution to a problem?</b>				
Students have multiple ways to demonstrate extension. For more information or to see a scoring rubric, contact your child's teacher.	<b>PS1-6: THERMAL ENERGY DESIGN PROJECT</b> - Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes. (Energy and Matter)	X		
<b>Metabolic Reactions:</b> <b>How do things inside our bodies work together to make us feel the way we do?</b>				
Students have multiple ways to demonstrate extension. For more information or to see a scoring rubric, contact your child's teacher.	<b>LS1-3: INTERACTING BODY SYSTEMS</b> - Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells. (Systems and System Models) <b>LS1-5: ENVIRONMENTAL AND GENETIC GROWTH FACTORS</b> - Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. (Cause and Effect) <b>LS1-7: FOOD AND CHEMICAL REACTIONS</b> - Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism."		X	
<b>Matter Cycling &amp; Photosynthesis:</b> <b>Where does food come from and where does it go next?</b>				
Students have multiple ways to demonstrate extension. For more information or to see a scoring rubric, contact your child's teacher.	<b>LS1-6: PHOTOSYNTHESIS: MATTER CYCLING AND ENERGY FLOW</b> - Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. <b>LS2-3: MATTER CYCLING AND ENERGY FLOW IN ECOSYSTEMS</b> - Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. <b>PS1-3: SYNTHETIC MATERIALS</b> - Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. (Structure and Function)"		X	
<b>Ecosystem Dynamics:</b> <b>How does changing an ecosystem affect what lives there?</b>				
Students have multiple ways to demonstrate extension. For more information or to see a scoring rubric, contact your child's teacher.	<b>LS2-1: EFFECTS OF RESOURCE AVAILABILITY</b> - Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. (Cause and Effect) <b>LS2-2: INTERDEPENDENT RELATIONSHIPS IN ECOSYSTEMS</b> - Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. <b>LS2-4: ECOSYSTEM INTERACTIONS AND DYNAMICS</b> - Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. (Stability and Change) <b>LS2-5: BIODIVERSITY AND ECOSYSTEM SERVICES SOLUTIONS</b> - Evaluate competing design solutions for maintaining biodiversity and ecosystem services. (Stability and Change)"			X
<b>Natural Resources &amp; Human Impact:</b> <b>How do changes in the Earth's system impact our communities and what can we do about it?</b>				

Students have multiple ways to demonstrate extension. For more information or to see a scoring rubric, contact your child's teacher.	<p><b>ESS3-1: UNEVEN DISTRIBUTION OF EARTH'S RESOURCES</b> - Construct a scientific explanation based on evidence for how the uneven distributions of earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes. (Cause and Effect)</p> <p><b>ESS3-3: HUMAN IMPACT ON THE ENVIRONMENT</b> - Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. (Cause and Effect)</p> <p><b>ESS3-4: HUMAN CONSUMPTION OF NATURAL RESOURCES</b> - Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact earth's systems. (Cause and Effect)</p> <p><b>ESS3-5: CAUSES OF GLOBAL WARMING</b> - Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century. (Stability and Change)"</p>			X
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<b>Engineering Design</b>				
Does Not Extend	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.	X	X	X
Does Not Extend	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	X	X	X
Does Not Extend	Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.	X	X	X
Does Not Extend	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.	X	X	X