



BROWNELL TALBOT

Seventh Grade Prioritized Science Standards

The prioritized standards listed align with the NGSS (Next Generation Science Standards) Performance Expectations. The NGSS also includes a set of Science and Engineering Practices for grades kindergarten through 12. A practice of science is to ask and refine questions that lead to descriptions and explanations of how the natural and designed world(s) work and which can be empirically tested. Engineering questions clarify problems to determine criteria for successful solutions and identify constraints to solve problems about the designed world. Both scientists and engineers also ask questions to clarify ideas.

(see the link at the bottom for detailed descriptions of those condensed practices, grades K-12)

LIFE SCIENCE		
Molecules to Organisms	Structure & Function	<p>Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.</p> <p>Develop and use a model to describe the function of a cell as a whole and ways the parts of cells contribute to the function.</p> <p>Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells. (MS-LS1-1, 2, 3)</p> <p>Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. (<i>secondary</i> MS-LS3-2)</p>
	Growth & Development	<p>Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. (MS-LS1-4)</p>
	Organization for Matter & Energy Flow	<p>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. (MS-LS1-6)</p>
Ecosystems	Interdependent Relationships	<p>Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. (MS-LS2-1)</p> <p>Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. (MS-LS2-2)</p>
	Cycles of Matter & Energy Transfer	<p>Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. (MS-LS2-3)</p>
	Dynamics, Functioning, & Resilience	<p>Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. (MS-LS2-4)</p> <p>Evaluate competing design solutions for maintaining biodiversity and ecosystem services. (MS-LS2-5)</p>

Heredity	Inheritance of Traits	Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism. (MS-LS3-1) Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. (MS-LS3-2)
	Variation in Traits	Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. (MS-LS3-2)
PHYSICAL SCIENCE		
Waves & Their Application	Wave Properties	Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave. (MS-PS4-1)
	Electromagnetic Radiation	Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. (MS-PS4-2)

Science and Engineering Practices in the NGSS: brownell.edu/ngss