



Proven Science Programs

**LAB-AIDS Correlations for
SOUTH DAKOTA SCIENCE STANDARDS**

MIDDLE SCHOOL, Grades 6-8

*Mark Koker, Ph D, EVP and Chief Academic Officer, LAB-AIDS
Lisa Kelp, Director of Professional Learning, LAB-AIDS*

This document is intended to show our alignment with the South Dakota Science Standards for Middle School, Grades 6-8.¹ The South Dakota Content Standards serve as expectations for what students should know and be able to do by the end of each grade. The review, revision, development, and feedback process involves stakeholders throughout the state of South Dakota and is an ongoing and critical component to ensure South Dakota students in every classroom receive current and relevant learning experiences.

ABOUT OUR PROGRAMS

Lab-Aids has maintained its home offices and operations in Ronkonkoma, NY, since 1963. We publish over 200 kits and core curriculum programs to support science teaching and learning, grades 6-12. All core curricula support an inquiry-driven pedagogy, with support for literacy skill development and with assessment programs that clearly show what students know and are able to do as a result of program use. All programs have extensive support for technology and feature comprehensive teacher support. For more information, please visit www.lab-aids.com and navigate to the program of interest.

SEPUP

Materials from the Science Education for Public Understanding Program (SEPUP) are developed at the Lawrence Hall of Science, at the University of California, Berkeley, and distributed nationally by Lab-Aids, Inc. Since 1987, development of SEPUP materials has been supported by grants from the National Science Foundation and other public and private sources. SEPUP programs include student books, equipment kits, teacher materials, and online digital content. The suggested sequence of units for South Dakota from *Issues and Science Redesigned for the NGSS* is shown below.

Earth Science	Life Science	Physical Science
Land, Water, and Human Interactions	Ecology	Energy
Geological Processes	Body Systems	Chemistry of Materials
Earth’s Resources	From Cells to Organisms	Chemical Reactions
Weather and Climate	Reproduction	Force and Motion
Solar System and Beyond	Evolution	Fields and Interactions
	Biomedical Engineering	Waves

¹<https://doe.sd.gov/contentstandards/documents/sdSciStnd.pdf>

ABOUT THE LAB-AIDS CITATIONS

Citations included in the correlation document are as follows:

SEPUP Unit title *The Chemistry of Materials*
Activity Number 2, 12, 14†

† indicates where Performance Expectation is assessed

KCCRSS/NGSS Performance Expectation	MS-PS1-2
Science and Engineering Practice	Planning and Carrying Out Investigations
Crosscutting Concept	Structure and Function
Disciplinary Core Idea	MS-PS1.A
Common Core English-Language Arts	RST.6-8.3
Common Core Mathematics	MP.2

South Dakota Middle School Standards (Grades 6-8)	SEPUP's <i>Issues and Science</i>
Earth and Space Science	Unit Title and Activity Number
MS-ESS1-1. Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. (SEP: 2; DCI: ESS1.A, ESS1.B; CCC: Patterns)	<i>Solar System and Beyond</i> : 2, 3, 4, 5 ⁺ , 6, 7, 8, 9 ⁺
MS-ESS1-2. Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. (SEP: 2; DCI: ESS1.A, ESS1.B; CCC: Systems)	<i>Solar System and Beyond</i> : 10, 11, 12, 14, 15, 16 ⁺
MS-ESS1-3. Analyze and interpret data to determine scale proportions of objects in the solar system. (SEP: 4; DCI: ESS1.B; CCC: Scale/Prop., Technology)	<i>Solar System and Beyond</i> : 1, 10, 11, 12, 13 ⁺
MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. (SEP: 2; DCI: ESS2.A; CCC: Stability/Change)	<i>Geological Processes</i> : 2, 5, 8, 9, 10, 11, 13, 14, 15 ⁺
MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. (SEP: 6; DCI: ESS2.A, ESS2.C; CCC: Scale/Prop.)	<i>Geological Processes</i> : 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13 ⁺
MS-ESS2-3. Analyze and interpret data on the age of the Earth, distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. (SEP: 4; DCI: ESS2.B, ESS1.C; CCC: Patterns)	<i>Geological Processes</i> : 10, 11, 12, 13, 14 ⁺
MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. (SEP:2; DCI: ESS2.C; CCC: Energy/Matter)	<i>Land, Water, and Human Interactions</i> : 2, 5, 7, 8, 9 ⁺
MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. (SEP: 3; DCI: ESS2.C, ESS2.D; CCC: Cause/Effect)	<i>Weather and Climate</i> : 2, 3, 7, 9, 10, 11, 12, 13 ⁺
MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. (SEP: 2; DCI: ESS2.C, ESS2.D; CCC: Systems)	<i>Weather and Climate</i> : 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14 ⁺
MS-ESS3-1. 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. (SEP: 6; DCI: ESS3.A ; CCC: Cause/Effect , Technology)	<i>Geological Processes</i> : 2, 16 ⁺ , 17 ⁺ <i>Earth's Resources</i> : 1, 2, 3, 5, 7, 8, 14 ⁺
MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. (SEP: 4; DCI: ESS3.B; CCC: Patterns, Technology)	<i>Geological Processes</i> : 1, 3, 4, 6, 7, 8, 11, 18 ⁺

South Dakota Middle School Standards (Grades 6-8)	SEPUP's <i>Issues and Science</i>
Earth and Space Science	Unit Title and Activity Number
MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.* (SEP: 6 ; DCI: ESS3.C; CCC: Cause/Effect, Technology)	<i>Land, Water, and Human Interactions:</i> 1, 3, 4, 5, 6, 9, 13, 14, 15, 16†
MS-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. (SEP: 7; DCI: ESS3.C; CCC: Cause/Effect, Technology, Nature Science/Consequence-Actions)	<i>Earth's Resources:</i> 2, 4, 6, 13† <i>Evolution:</i> 14
MS-ESS3-5. Ask questions to clarify evidence of the factors that may have caused a change in global temperatures over the past century. (SEP: 1; DCI: ESS3.D; CCC: Stability/Change)	<i>Weather and Climate:</i> 1, 10, 14, 15, 16†

South Dakota Middle School Standards (Grades 6-8)	SEPUP's <i>Issues and Science</i>
Life Science	Unit Title and Activity Number
MS-LS1-1. Plan and carry out an investigation to provide evidence that living things are made of cells; either one cell or many different types and numbers of cells. (SEP: 3; DCI: LS1.A; CCC: Scale/Prop., Technology)	<i>From Cells to Organisms: 1, 2, 3, 4, 9⁺</i>
MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. (SEP: 2; DCI: LS1.A; CCC: Structure/Function)	<i>From Cells to Organisms: 6, 7, 8⁺</i>
MS-LS1-3. Construct an argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells. (SEP: 7 ; DCI: LS1.A; CCC: Systems)	<i>From Cells to Organisms: 10, 14, 15</i> <i>Body Systems: 1, 2, 3, 4, 9, 10, 11, 12⁺</i>
MS-LS1-4. Construct an 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. (SEP: 7; DCI: LS1.B; CCC: Cause/Effect)	<i>Reproduction: 10⁺, 11⁺</i>
MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. (SEP: 6; DCI: LS1.B; CCC: Cause/Effect)	<i>Reproduction: 1, 7⁺</i>
MS-LS1-6. 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. (SEP: 6, Nature Science/Empirical Evidence; DCI: LS1.C, PS3.D; CCC: Energy/Matter)	<i>From Cells to Organisms: 12, 13⁺</i>
MS-LS1-7. 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. (SEP: 2; DCI: LS1.C, PS3.D; CCC: Energy/Matter)	<i>From Cells to Organisms: 5, 11⁺</i> <i>Body Systems: 5</i>
MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. (SEP: 4; DCI: LS2.A; CCC: Cause/Effect)	<i>Ecology: 5, 6, 9⁺</i>
MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. (SEP: 6; DCI: LS2.A; CCC: Patterns)	<i>Ecology: 2, 8, 10⁺</i>
MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. (SEP: 2; DCI: LS2.B; CCC: Energy/Matter)	<i>Ecology: 7, 8, 11, 12⁺</i> <i>From Cells to Organisms: 13</i>
MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components	<i>Ecology: 1, 2, 3, 4, 5, 6, 13, 14⁺</i>

South Dakota Middle School Standards (Grades 6-8)	SEPUP's <i>Issues and Science</i>
Life Science	Unit Title and Activity Number
of an ecosystem affect populations. (SEP: 7; DCI: LS2.C ; CCC: Stability/Change)	
MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.* (SEP: 7; DCI: LS2.C, LS4.D, ETS1.B ; CCC: Stability/Change, Technology)	<i>Ecology: 2, 4, 15[†]</i>
MS-LS3-1. 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. (SEP:2 ; DCI: LS3.A, LS3.B; CCC: Structure/Function)	<i>Reproduction: 1, 3, 8, 12, 13[†]</i> <i>Evolution: 3, 4, 5[†]</i>
MS-LS3-2. 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. (SEP: 2; DCI: LS1.B, LS3.A, LS3.B; CCC: Cause/Effect)	<i>Reproduction: 1, 2, 3, 4, 5, 6, 8, 9[†]</i>
MS-LS4-1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth. (SEP: 4; DCI: LS4.A; CCC: Patterns)	<i>Evolution: 7, 8, 9, 10 11[†]</i>
MS-LS4-2. Apply scientific ideas to construct an explanation for similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships. (SEP: 6; DCI: LS4.A; CCC: Patterns)	<i>Evolution: 7, 8, 9, 10 11, 12[†]</i>
MS-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment. (SEP: 6; DCI: LS4.B; CCC: Cause/Effect)	<i>Evolution: 1, 2, 3, 4[†]</i>
MS-LS4-5. Obtain, evaluate, and communicate information about how technological advances have changed the way humans influence the inheritance of desired traits in organisms. * (SEP: 8; DCI: LS4.B; CCC: Cause/Effect, Technology)	<i>Evolution: 1, 2, 3, 4[†]</i>
MS-LS4-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time. (SEP: 5; DCI: LS4.C; CCC: Cause/Effect)	<i>Evolution: 1, 2, 3, 4, 5, 6[†]</i>

South Dakota Middle School Standards (Grades 6-8)	SEPUP's <i>Issues and Science</i>
Physical Science	Unit Title and Activity Number
MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures. (SEP:2 ; DCI: PS1.A; CCC: Scale/Prop.)	<i>Chemistry of Materials: 2, 6, 7, 12[†]</i>
MS-PS1-2. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. (SEP: 8; DCI: PS1.A, PS1.B; CCC: Patterns)	<i>Chemical Reactions: 1, 2, 3, 4, 5[†]</i>
MS-PS1-3. Obtain and evaluate information to describe that synthetic materials come from natural resources and impact society. (SEP: 8; DCI: PS1.A, PS1.B; CCC: Structure/Function, Technology)	<i>Chemistry of Materials: 1, 2, 3, 4, 5, 11, 12, 13[†]</i>
MS-PS1-4. Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed. (SEP: 2; DCI: PS1.A, PS3.A; CCC: Cause/Effect)	<i>Chemistry of Materials: 8, 9, 10[†]</i>
MS-PS1-5. 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. (SEP: 2 ; DCI: PS1.B; CCC: Energy/Matter)	<i>Chemical Reactions: 1, 2, 3, 4, 5, 6, 7[†]</i>
MS-PS1-6. Design, construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.* (SEP: 6; DCI: PS1.B, ETS1.B, ETS1.C; CCC: Energy/Matter)	<i>Chemical Reactions: 2, 3, 5, 8, 9, 10, 11[†]</i>
MS-PS2-1. Design a solution to a problem involving the motion of two colliding objects that illustrates Newton's Third Law.* (SEP: 6; DCI: PS2.A; CCC: Systems, Technology)	<i>Force and Motion: 1, 10, 11, 12[†]</i>
MS-PS2-2. Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. (SEP: 3; DCI: PS2.A; CCC: Stability/Change)	<i>Force and Motion: 1, 6, 7, 8, 9, 13[†]</i>
MS-PS2-3. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces. (SEP: 1; DCI: PS2.B; CCC: Cause/Effect)	<i>Fields and Interactions: 7, 8, 9, 12, 13[†], 14</i>
MS-PS2-4. Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects. (SEP: 7; DCI: PS2.B; CCC: Systems)	<i>Fields and Interactions: 3, 4, 7[†]</i>
MS-PS2-5. Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact. (SEP: 3; DCI: PS2.B; CCC: Cause/Effect)	<i>Fields and Interactions: 5, 7, 9, 10, 12[†]</i>

South Dakota Middle School Standards (Grades 6-8)	SEPUP's <i>Issues and Science</i>
Physical Science	Unit Title and Activity Number
MS-PS3-1. Construct and analyze graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. (SEP: 4; DCI: PS3.A; CCC: Scale/Prop.)	<i>Force and Motion</i> : 1, 2, 3, 4, 5 [†]
MS-PS3-2. Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system. (SEP: 2; DCI: PS3.A, PS3.C; CCC: Systems)	<i>Fields and Interactions</i> : 3, 4, 6, 7, 10, 11 [†] <i>Force and Motion</i> : 1, 3, 4, 5, 10, 14
MS-PS3-3. Design, construct, and test a device that either minimizes or maximizes thermal energy transfer.* (SEP: 6; DCI: PS3.A, PS3.B, ETS1.A, ETS1.B, ; CCC: Energy/Matter)	<i>Energy</i> : 1, 7, 8, 10, 11, 12, 13 [†]
MS-PS3-4. Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. (SEP: 3; DCI: PS3.A, PS3.B; CCC: Scale/Prop.)	<i>Energy</i> : 1, 4, 6, 7, 8 [†]
MS-PS3-5. Engage in argument from evidence to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. (SEP: 7; DCI: PS3.B; CCC: Energy/Matter)	<i>Energy</i> : 2, 3, 4, 5, 6 [†]
MS-PS4-1. 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. (SEP: 5; DCI: PS4.A; CCC: Patterns)	<i>Waves</i> : 1, 2, 3, 7 [†]
MS-PS4-2. Develop and use a model to describe how waves are reflected, absorbed, or transmitted through various materials. (SEP: 2; DCI: PS4.A, PS4.B; CCC: Structure)	<i>Waves</i> : 3, 4, 8, 9, 10, 11, 12, 13 [†]
MS-PS4-3. Obtain, evaluate and communicate information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals. (SEP: 8; DCI: PS4.C; CCC: Structure, Technology)	<i>Waves</i> : 5, 6 [†]