Lab-Aids Correlations for

ARIZONA SCIENCE STANDARDS[1]

MIDDLE SCHOOL LEVEL – GRADES 6-8

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This document is intended to show how the SEPUP 3rd edition materials align with the new *AZ Science Standards*.

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, and are available as full year courses, or separately, as units, each taking 3-8 weeks to complete, as listed below.

Suggested Middle Level Sequence, Grades 6-8

Sixth Grade	**Seventh Grade**	**Eighth Grade**
Chemistry of Materials	Fields and Interactions	Chemical Reactions
Solar System and Beyond	Force and Motion	(Energy[2])
Land, Water, and Human Interactions	Geological Processes	Waves
Ecology	From Cells to Organisms	Earth's Resources
		Reproduction
		Evolution

[1] Adopted by the Arizona Board of Education, October 22, 2018

[2] Energy standards 8.P4U1.3 and 8.P4U1.4 can be addressed using the Chemical Reactions unit and the Energy unit can be omitted if desired to save instructional time in the school year.

An asterisk (*) indicates the number of the activity where the AZ standard is assessed.

AZ Standard	Where found in SEPUP 3e
SIXTH GRADE STANDARDS	
Physical Science Standards	
6.P1U1.1 **Analyze and interpret data** to show that changes in states of matter are caused by different rates of movement of atoms in solids, liquids, and gases (Kinetic Theory).	*Chemistry of Materials:* 7, 8, 9, 10
6.P1U1.2 **Plan and carry out an investigation** to demonstrate that variations in temperature and/or pressure affect changes in state of matter.	*Chemistry of Materials:* 7, 8, 9, 10
6.P1U1.3 **Develop and use models** to represent that matter is made up of smaller particles called atoms.	*Chemistry of Materials:* 2, 6, 7, 11, 12*
6.P2U1.4 **Develop and use a model** to predict how forces act on objects at a distance.	*Fields and Interactions:* 5, 7, 8* (EM fields) *Solar System and Beyond:* 1, 10, 11, 12, 13, 14, 15, 16* (gravity)
6.P4U2.5 **Analyze** how humans use technology to store (potential) and/or use (kinetic) energy.	*Chemical Reactions:* 2, 3, 5, 7, 8, 9, 10, 11*
Earth and Space Standards	
6.E1U1.6 **Investigate and construct an explanation** demonstrating that radiation from the Sun provides energy and is absorbed to warm the Earth's surface and atmosphere.	*Land, Water, and Human Interaction:* 2, 5, 7, 8, 9*
6.E2U1.7 Use ratios and proportions to **analyze and interpret data** related to scale, properties, and relationships among objects in our solar system.	*Solar System and Beyond:* 10, 11, 12, 13*
6.E2U1.8 **Develop and use models** to explain how constellations and other night sky patterns appear to move due to Earth's rotation and revolution.	*Solar System and Beyond:* 2, 3, 4, 5, 6, 7, 9*
6.E2U1.9 **Develop and use models to construct an explanation** of how eclipses, moon phases, and tides occur within the Sun-Earth-Moon system.	*Solar System and Beyond:* 2, 3, 4, 5, 6, 7, 9*

AZ Standard	Where found in SEPUP 3e
6.E2U1.10 **Use a model** to show how the tilt of Earth's axis causes variations in the length of the day and gives rise to seasons	*Solar System and Beyond:* 2, 3, 4, 5, 6, 7, 9*
Life Science Standards	
6.L2U3.11 **Use evidence** to **construct an argument** regarding the impact of human activities on the environment and how they positively and negatively affect the competition for energy and resources in ecosystems	*Land, Water, and Human Interactions*: 1, 2, 3, 4, 5, 6
6.L2U3.12 **Engage in argument from evidence** to support a claim about the factors that cause species to change and how humans can impact those factors.	*Evolution:* 1, 2, 3, 4, 5, 6*, 14, 15, 16*
6.L2U1.13 **Develop and use models** to demonstrate the interdependence of organisms and their environment including biotic and abiotic factors.	*Ecology:* 7, 8, 11, 12*, 15, 16
6.L2U1.14 **Construct a model** that shows the cycling of matter and flow of energy in ecosystems.	*Ecology 7, 8, 10, 11*
SEVENTH GRADE STANDARDS	
Physical Science Standards	
7.P2U1.1 **Collect and analyze data** demonstrating how electromagnetic forces can be attractive or repulsive and can vary in strength.	*Fields and Interactions:* 5, 7, 8, 9, 11, 12*
7.P2U1.2 **Develop and use a model** to predict how forces act on objects at a distance.	*Fields and Interactions:* 3, 6, 7, 10*
7.P3U1.3 **Plan and carry out an investigation** that can support an evidence-based explanation of how objects on Earth are affected by gravitational force.	*Fields and Interactions:* 4, 6, 7*7-8
7.P3U1.4 **Use** non-algebraic **mathematics and computational thinking** to explain Newton's laws of motion.	*Force and Motion:* 1, 10, 11, 12* *Force and Motion:* 1, 6, 7, 8, 9, 13*
Earth and Space Standards	
7.E1U1.5 **Construct a model** that shows the cycling of matter and flow of energy in the atmosphere, hydrosphere, and geosphere.	*Geological Processes:* 2, 5, 8, 9, 10, 11, 13, 14, 15*
7.E1U1.6	*Geological Processes:* 10, 11, 12, 13, 14*

AZ Standard	Where found in SEPUP 3e
Construct a model to explain how the distribution of fossils and rocks, continental shapes, and seafloor structures provides evidence of the past plate motions.	
7.E1U2.7 **Analyze and interpret data to construct an explanation** for how advances in technology has improved weather prediction.	*Geological Processes:* 1, 3, 4, 6, 7, 8, 11, 18*
Life Science Standards	
7.L1U1.8 **Obtain, evaluate, and communicate information** to provide evidence that all living things are made of cells, cells come from existing cells, and cells are the basic structural and functional unit of all living things.	*From Cells to Organisms*: 1, 2, 3, 4, 5, 6, 7, 8, 9*
7.L1U1.9 **Construct an explanation** to demonstrate the relationship between major cell structures and cell functions (plant and animal).	*From Cells to Organisms*: 4, 6, 7, 8*
7.L1U1.10 **Develop and use a model** to explain how cells, tissues, and organ systems maintain life (animals).	*From Cells to Organisms*: 10, 14, 15
7.L1U1.11 **Explain** how organisms maintain internal stability and evaluate the effect of the external factors on organisms' internal stability.	*From Cells to Organisms*: 4, 6, 7, 8*
7.L2U1.12 **Construct an explanation** for how some plant cells convert light energy into food energy.	*From Cells to Organisms*: 12, 13*
EIGHTH GRADE	
Physical Science Standards	
8.P1U1.1 **Develop and use a model** to demonstrate that atoms and molecules can be combined or rearranged in chemical reactions to form new compounds with the total number of each type of atom conserved.	*Chemical Reactions:* 1, 2, 3, 4, 5, 6, 7*
8.P1U1.2 **Obtain and evaluate information** regarding how scientists identify substances based on unique physical and chemical properties.	*Chemical Reactions:* 1, 2, 3, 4, 5*
8.P4U1.3 **Construct an explanation** on how energy can be transferred from one energy store to another.	*Energy:* 1, 4, 6, 7, 8* *Chemical Reactions:* 8-11
8.P4U1.4	*Waves:* 1, 2, 3, 4, 7*

AZ Standard	Where found in SEPUP 3e
Develop and use mathematical models to explain wave characteristics and interactions.	
8.P4U2.5 **Develop a solution** to increase efficiency when transferring energy from one source to another.	*Energy:* 1, 7, 8, 9, 10, 11, 12, 13* *Chemical Reactions:* 8-11
Earth and Space Standards	
8.E1U1.6 **Analyze and interpret data** about the Earth's geological column to **communicate** relative ages of rock layers and fossils.	*Earth's Resources:* 9, 10, 11, 12*
8.E1U3.7 **Obtain, evaluate, and communicate** information about data and historical patterns to predict natural hazards and other geological events**.**	*Geological Processes:* 1, 3, 4, 6, 7, 8, 11, 18*
8.E1U3.8 **Construct and support an argument** about how human consumption of limited resources impacts the biosphere.	*Earth's Resources:* 2, 4, 6, 13*
Life Science Standards	
8.L3U1.9 **Construct an explanation** of how genetic variations occur in offspring through the inheritance of traits or through mutations.	*Reproduction:* 1, 3, 7, 8, 12, 13*
L3U3.10 **Communicate** how advancements in technology have furthered the field of genetic research and use evidence to support an argument about the positive and negative effects of genetic research on human lives.	*Evolution:* 14, 15, 16*
8.L4U1.11 **Develop and use a model** to explain how natural selection may lead to increases and decreases of specific traits in populations over time.	*Evolution:* 1, 2, 3, 4, 5, 6*
8.L4U1.12 **Obtain and communicate evidence** on the processes by which a species may adapt over time in response to environmental conditions. **Gather and communicate evidence on how the process of natural selection provides an explanation of how new species can evolve. (ASTA recommended edit)**	*Evolution:* 1, 2, 3, 4, 5, 6*