

LAB-AIDS CORRELATIONS FOR THE NEVADA ACHIEVEMENT INDICATORS FOR SCIENCE

GRADES 9-12

LAB-AIDS publishes a number of relevant programs for Nevada high school teachers. This document is intended to show selected locations in our programs that support the current Nevada Content Standards for Science, grades 9-12.

Science and Sustainability (SAS) is the high school environmental science program from SEPUP, with support from the National Science Foundation and published by LAB-AIDS. It is a one year course, and consists of four units: Living on Earth, Feeding the World, Using Earth's Resources, Moving the World. A companion text, *The Material World*, is published by Sierra Club Press and used extensively in teaching of the *Science and Sustainability* course. *A Natural Approach to Chemistry* (NAC) is a high school chemistry course, written by Hsu, Chaniotakis, Carlisle, and Damelin, and is published by, and available exclusively from, LAB-AIDS, Ronkonkoma NY.

This document was prepared by Mark Koker, Ph D, Director of Curriculum and Training at LAB-AIDS. It is not an exhaustive list; other locations may exist that are not listed here. For more information about this correlation or for questions about review copies, presentations, or any matters related to sales or service, please contact Pat Lewis, LAB-AIDS Regional Manager at 702.240.7882, voicemail: 800-381-8003, ext. 146, or by e-mail at plewis@lab-aids.com, or visit us on the web at www.lab-aids.com.

Nevada Content Standard	Location in SAS	Location in NAC	
		Student book	Lab Manual
N12A Students understand that a variety of communication methods can be used to share scientific information			
N.12.A.1 Students know tables, charts, illustrations and graphs can be used in making arguments and claims in oral and written presentations.	Throughout, e.g., 2-4, 7-9, 11-14, 16-19, etc.		3C: 1; 4A: 2-3; 5B: 4; 5C: 3; 7A-C; 9A: 2; 9B; 12B: 5; 13A: 8; 14B: 3
N.12.A.2 Students know scientists maintain a permanent record of procedures, data, analyses, decisions, and understandings of scientific investigations.	Throughout, e.g., 1-4, 7-9, 11-14, 16-18, etc.	1.2	3C: 1; 4A: 2-3; 5B: 4; 5C: 3; 7A-C; 9A: 2; 9B; 12B: 5; 13A: 8; 14B: 3
N.12.A.3 Students know repeated experimentation allows for statistical analyses and unbiased conclusions.	1, 25, 31, 33	1.2	3B: 6; 8A: 3; 9B: 6; 11B: 6; 12B: 6; 13B: 4; 14A: 3
N.12.A.4 Students know how to safely conduct an original scientific investigation using appropriate tools and technology.	Throughout, e.g., 2, 3, 5, 11, 14-15, 18, etc.		xi-xiv, 1C, 2A, 2C, 3A-D, 4A, 5B, 8A, 9A-C, 10B-C, 11A, 12A, 13A, 15A-D, 17B
N.12.A.5 Students know models and modeling can be used to identify and predict cause-effect relationships.	Throughout, e.g., 2, 3, 7-9, 13, 15, 17-19, etc.	5.1, 6.1, 14.2	5A, 6C, 7A, 7B
N.12.A.6 Students know organizational schema can be used to represent and describe relationships of sets.			
N12B Students understand the impacts of science and technology in terms of costs and benefits to society.			
N.12.B.1 Students know science, technology, and	Throughout	1.3, 10.4, 15.4,	17A

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society influenced one another in both positive and negative ways.		18.4, 19.3	
N.12.B.2 Students know consumption patterns, conservation efforts, and cultural or social practices in countries have varying environmental impacts.	7-9, 11, 24, 29	10.4, 15.4	
N.12.B.3 Students know the influence of ethics on scientific enterprise.	1, 4, 6, 10, 11, 18, 19, 23, 24, 25, 26, 29, 31, 34, 35, 36, 37	1.2	
N.12.B.4 Students know scientific knowledge builds on previous information.	4, 14, 16, 22, 28	1.2, 5.1, 6.1, 14.2	
P12A Students understand that atomic structure explains the properties and behavior of matter			
P.12.A.1 Students know different molecular arrangements and motions account for the different physical properties of solids, liquids, and gases.	15	2.1, 9.1, 14.1	2A, 2D
P.12.A.2 Students know elements in the periodic table are arranged into groups and periods by repeating patterns and relationships.	15	6.1, 6.2	6A, 6B
P.12.A.3 students know identifiable properties can be used to separate mixtures.	26, 33	2.1, 2.2	2.1
P.12.A.4 Students know atoms bond with one another by transferring or sharing electrons.	15, 22	7.1	7A, 7B
P.12.A.5 Students know chemical reactions can take place at different rates, depending on a variety of factors (i.e., temperature, concentration, surface area, and agitation).	26, 33	12.1	12A, 12B
P.12.A.6 Students know chemical reactions either release or absorb energy.	33	4.2	4B, 4C
P.12.A.7 Students know that in chemical reactions, elements combine in predictable ratios, and the numbers of atoms of each element do not change.	15	11.1	11A, 11B
P.12.A.8 Students know most elements have two or more isotopes, some of which have practical applications.	34	5.1	5A
P.12.A.9 Students know the number of electrons in an atom determines whether the atom is electrically neutral or an ion.	15	5.1	5A
P12B Students understand the interactions between force and motion.			
P.12.B.1 Students know laws of motion can be used to determine the effects of forces on the motion of objects.	34		
P.12.b.2 Students know magnetic forces and electric forces can be thought of as different aspects of electromagnetic force.			
P.12.B.3 Students know the strength of the electric force between two objects increases with charge and decreases with distance.			
P.12.B.4 Students know the strength of the gravitational force between two objects increases with mass and decreases rapidly with distance.			
P12C Students understand that there are interactions between matter and energy.			

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P.12.C.1 Students know waves (i.e., sound, seismic, electromagnetic) have energy that can be transferred when the waves interact with matter.	34		
P.12.C.2 Students know energy forms can be converted.	32, 33		
P.12.C.3 Students know nuclear reactions convert a relatively small amount of material into a large amount of energy.	32, 33	20.4	
P.12.C.4 Students know characteristics, applications and impacts of radioactivity.	34	20.2	
P.12.C.5 Students know the relationship between heat and temperature.	34	3.1, 3.2	3A, 3B
P.12.C.6 Students know electricity is transferred from generating sources for consumption and practical uses.			
L12A Students understand how genetic information is passed from one generation to another.			
L.12.A.1 Students know genetic information passes from parents to offspring is coded in the DNA molecule.	17-19		
L.12.A.2 Students know DNA molecules provide instructions for assembling protein molecules.	19		
L.12.A.3 Students know all body cells in an organism develop from a single cell and contain essentially identical instructions.	17-19		
L.12.A.4 Students know several causes and effects of somatic versus sex cell mutations.	19		
L.12.A.5 Students know how to predict patterns of inheritance.	17-19		
L12B Students understand that all life forms, at all levels of organization, use specialized structures and similar processes to meet life's needs.			
L.12.B.1 Students know cell structures and their functions.	13		
L.12.B.2 Students know the human body has a specialized anatomy and physiology composed of a hierarchical arrangement of differentiated cells.			
L.12.B.3 Students know disease disrupts the equilibrium that exists in a healthy organism.			
L12C Students understand that ecosystems display patterns of organization, change, and stability as a result of the interactions and interdependencies among the living and non-living components of the Earth.			
L.12.C.1 Students know relationships of organisms and their physical environments.	2, 6, 11		
L.12.C.2 Students know how changes in an ecosystem can affect biodiversity and biodiversity's contribution to an ecosystem's stability.	6, 11, 25, 36		
L.12.C.3 Students know the amount of living matter an environment can support is limited by the availability of matter, energy, and the ability of the ecosystem to recycle materials.	1-3		

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L.12.C.4 Students know the unique geologic, hydrologic, climatic, and biological characteristics of Nevada's bioregions.	Local program goal		
L12D Students understand biological evolution and diversity of life.			
L.12.D.1 Students know organisms can be classified based on evolutionary relationships.			
L.12.D.2 Students know similarity of DNA sequences give evidence of relationships between organisms.	19		
L.12.D.3 Students know the fossil record gives evidence for natural selection and its evolutionary consequences. L.12.D.4 Students know the extinction of species can be a natural process.			
L.12.D.5 Students know biological evolution explains diversity of life.			
L.12.D.6 Students know concepts of natural and artificial selection.			
E12A Students understand that heat and energy transfer in and out of the atmosphere and influence weather and climate.			
E.12.A.1 Student's know the Sun is the major source of Earth's energy, and provides the energy driving Earth's weather and climate.	16	21.1	
E.12.A.2 Student's know the composition of Earth's atmosphere has changed in the past and is changing today.	6, 29, 36		
E.12.A.3 Students understand the role of the atmosphere in Earth's greenhouse effect.	6	21.1	
E.12.A.4 Students know convection and radiation play important roles in moving heat energy in the Earth system.		21.1	
E.12.A.5 Students know Earth's rotation affects winds and ocean currents.			
E12C Students know scientific theories of origins and evolution of the universe.			
E.12.B.1 Students know common characteristics of stars.		21.1	
E.12.B.2 students know stars are powered by nuclear fusion of lighter elements into heavier elements, which results in the release of large amounts energy.		21.1	
E.12.B.3 Students know ways in which technology has increased understanding of the universe.	34	21.1	
E.12.B.4 Students know the ongoing processes involved in star formation and destruction.			
E.12.B.5 Students know scientific evidence suggests that the universe is expanding.		21.1	
E12C Students understand evidence for processes that take place on a geologic time scale.			
E.12.C.1 Students know how successive rock strata and fossils can be used to confirm the age, history, and changing life forms of the Earth, including how this evidence is affected by the folding, breaking, and uplifting of layers.			

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E.12.C.2 Students understand the concept of plate tectonics including the evidence that supports it (structural, geophysical and paleontological evidence).			
E.12.C.3 Students know elements exist in fixed amounts and move through solid earth, oceans, atmosphere and living things as part of biogeochemical cycles.	1, 10, 22, 30, 36		
E.12.C.4 Students know processes of obtaining, using, and recycling of renewable and non-renewable resources.	24, 31, 32		
E.12.C.5 Students know soils, derived from weathered rocks and decomposed organic material, is found in layers.	12		