Nevada Alternate Assessment

Nevada Academic Content Standard Connectors for Science

Grade 11

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Nevada Academic Content Connectors

The Nevada Academic Content Connectors (NACC) for Science represents the academic skills upon which students to be instructed. The NACCs for Science are linked to the Nevada Academic Content Standards and represent the key academic knowledge, skills and abilities of the Science content at each grade level. The NVAC Connectors for Science were modeled after the Criterion Referenced Test (CRT) and represent the enduring understanding of the content standards for Science at a given grade level.

Example: Science Grade 5

Nevada Academic Content Standards (NVACS)	NVAC Connectors
Structure and Properties of Matter 0	
5-PS1-1 Develop a model to describe that matter is made of particles too small to be seen. **(2)**	Describe that matter is made of particles to small to be seen. **(3)**
5-PS1-2 Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. **(2)**	Identify a graph that shows how temperature changes affect weight. **(3)**

(1) NGSS Disciplinary Core Idea Topical Groupings
(2) Science Content Standards
(3) Connectors to the Content Standards

The Nevada Alternate Assessment was developed to allow students an opportunity to fully demonstrate their knowledge in each content area. This ability to demonstrate knowledge of core content and skills is critical as educators seek to provide access to the general education curriculum while fostering higher expectations for students with significant cognitive disabilities.

NAA Science NVAC Connectors - Grade 11

Nevada Academic Content Standards (NVACS)	NVAC Connectors
Biological Structure and Function	
HS-LS1-1 Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins, which carry out the essential functions of life through systems of specialized cells.	Explain how the structure of DNA defines the structure of the protein which it codes (proteins carry out life functions).
HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.	Model at least two body systems in terms of their contributions to the overall function of the organism.
HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.	Describe how negative and positive feedback maintain body systems (homeostasis).
Matter and Energy in Organisms and Ecosystems	
HS-LS1-5 Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.	Describe how environmental factors affect the process of photosynthesis (A series of chemical reactions that convert light energy into stored chemical energy).
HS-LS1-7 Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.	Reinforce the idea that energy stored in food molecules originally came primarily from the sun's energy.
HS-LS2-3 Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.	Compare aerobic (using oxygen) and anaerobic (not using oxygen) respiration in terms of the organisms that use each process.
HS-LS2-4 Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.	Apply the conservation of matter and energy to food webs.
HS-LS2-5 Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.	Use diagrams to emphasize conservation of matter (carbon) as atoms through the ecosystem.

Nevada Academic Content Standards (NVACS)	NVAC Connectors
Interdependent Relationships in Ecosystems	
HS-LS2-1 Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.	Describe the role resource availability plays on carrying capacity (population an ecosystem can support).
HS-LS2-2 Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.	Describe how changes in an ecosystem may affect biodiversity and characteristics of populations.
HS-LS2-6 Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.	Examine biodiversity and the relationships among ecosystems.
HS-LS2-7 Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.	Explain how human activity may affect the environment and biodiversity.
HS-LS2-8 Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce.	Explain how group behavior can increase the chances for an individual and a species to survive and reproduce.
HS-LS4-6 Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.	Use a simulation or model to describe the effectiveness of human solutions related to the loss of biodiversity.

Nevada Academic Content Standards (NVACS)	NVAC Connectors
Inheritance and Variation of Traits	
HS-LS1-4 Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.	Describe how cell division (mitosis) is a mechanism that allows organisms to grow, develop, and repair damaged tissue.
HS-LS3-1 Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.	Explain the relationships among DNA, chromosomes, and traits observed in organisms.
HS-LS3-2 Make and defend a claim based on evidence that inheritable genetic variations may result from (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.	Explain that during meiosis genetic information can combine in may different ways.
HS-LS3-3Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.	Use data to identify patterns and explain the distribution of an expressed trait when environmental variables change.
Natural Selection and Evolution	
HS-LS4-1 Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.	Explain that there is a significant amount of evidence (fossils, DNA/genetics, embryological patterns, vestigial organs, comparative anatomy) that shows organisms change over time through biological evolution.
HS-LS4-2 Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.	Explain that evolution can occur due to natural selection.
HS-LS4-3 Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.	Describe how traits, that allow organisms to better survive, are passed to offspring and over time become more common in a population.
HS-LS4-4 Construct an explanation based on evidence for how natural selection leads to adaptation of populations.	Examine evidence that the rate of natural selection changes based on the environment and the population of organisms in that environment.
HS-LS4-5 Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.	Explain that changes to the environment, which occur at different rates, can lead to the expansion of some species, the emergence of a new species, and the decline or extinction of some species.