# Nevada's Academic Content Standards Alignment Form: Science

## Directions

1) Download or make a copy of this document.
2) Save this document using the following naming convention: Vendor-Name_ContentArea_StandAlign_Year_Purpose (*example:* NDE-Publishing_SocialStudies_2025_DistanceEducation)
3) Complete the "Information" section below.
4) Complete the worksheet(s) for the grade level(s) of the course(s) you are submitting by selecting the appropriate tab below. Columns 'B' and 'C' should be completed in their entirety.
5) Please leave columns 'E' and 'F' blank. These columns are reserved for the Nevada Department of Education to leave feedback on whether or not a standard has been met.

| Information | |
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| Vendor or Entity Name: | The Carolina Certified Version of OpenSciEd High School Biology |
| Submission Date: | June 2026 |
| Content Area: | Biology |
| Course Name(s) and Number(s): | Biology - 3010/Biology Honors-30104 |
| Grade Level(s) or Band(s): | Grades 9-12 |

# Nevada's Academic Content Standards Alignment Form for Biology

| Nevada Academic Content Standards for Biology | Provide Direct Links or Specific Locations Where the Standard is Located in Your Materials. | Provide Direct Links or Specific Locations Where the Standard is Assessed. | For NDE Use Only Determination (Meets/Does Not Meet) | For NDE Use Only Reviewer Comments/Justification |
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| **HS-LS1 From Molecules to Organisms: Structures and Processes** | | | | |
| 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. | See Biology Unit 3 Elements of NGSS Dimensions | See Biology Unit 3 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students 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. |
| HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. | See Biology Unit 3 Elements of NGSS Dimensions. | See Biology Unit 3 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. |
| HS-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. | See Biology Unit 5 Elements of NGSS Dimensions. | See Biology Unit 5 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. |
| HS-LS1-4. Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms | See Biology Unit 3 Elements of NGSS Dimensions. | See Biology Unit 3 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. |
| HS-LS1-5. Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy. | See Biology Unit 2 Elements of NGSS Dimensions | See Biology Unit 2 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students use a model to illustrate how photosynthesis transforms light energy into stored chemical energy. |
| HS-LS1-6. Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules. | See Biology Unit 2 Elements of NGSS Dimensions | See Biology Unit 2 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules. |
| 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. | See Biology Unit 2 Elements of NGSS Dimensions | See Biology Unit 2 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students use a model to illustrate that cellular respiration is a chemical process that by 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. |
| **HS-LS2 Ecosystems: Interactions, Energy, and Dynamics** | | | | |

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| HS-LS2-1. Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales. | See Biology Unit 1 Elements of NGSS Dimensions | See Biology Unit 1 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales. |
| 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. | See Biology Unit 1 Elements of NGSS Dimensions | See Biology Unit 1 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales. |
| 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. | See Biology Unit 2 Elements of NGSS Dimensions | See Biology Unit 2 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions. |
| HS-LS2-4. Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem. | See Biology Unit 2 Elements of NGSS Dimensions | See Biology Unit 2 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem. |
| 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. | See Biology Unit 2 Elements of NGSS Dimensions | See Biology Unit 2 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere. |
| 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. | See Biology Unit 1 Elements of NGSS Dimensions | See Biology Unit 1 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students 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. |
| HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity. | See Biology Unit 1 Elements of NGSS Dimensions | See Biology Unit 1 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students design, evaluate, and refine a solution for reducing the impacts of human activities on 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. | See Biology Unit 1 Elements of NGSS Dimensions | See Biology Unit 1 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce. |
| **HS-LS3 Heredity: Inheritance and Variation of Traits** | | | | |

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| 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. | See Biology Unit 3 Elements of NGSS Dimensions. | See Biology Unit 3 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring. |
| 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. | See Biology Unit 3 Elements of NGSS Dimensions. | See Biology Unit 3 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students 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. |
| HS-LS3-3. Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population. | See Biology Unit 3 Elements of NGSS Dimensions. | See Biology Unit 3 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population. |
| **HS-LS4 Biological Evolution: Unity and Diversity** | | | | |
| HS-LS4-1. Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence. | See Biology Unit 5 Elements of NGSS Dimensions. | See Biology Unit 5 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence. |
| 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. | See Biology Unit 4 Elements of NGSS Dimensions | See Biology Unit 4 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students 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. |
| 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. | See Biology Unit 4 Elements of NGSS Dimensions | See Biology Unit 4 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students 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. |
| HS-LS4-4. Construct an explanation based on evidence for how natural selection leads to adaptation of populations. | See Biology Unit 4 Elements of NGSS Dimensions | See Biology Unit 4 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students construct an explanation based on evidence for how natural selection leads to adaptation of populations. |

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| 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. | See Biology Unit 4 Elements of NGSS Dimensions | See Biology Unit 4 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students 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. |
| HS-LS4-6. Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity. | See Biology Unit 4 Elements of NGSS Dimensions | See Biology Unit 4 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity. |
| **HS-ETS1 Engineering Design** | | | | |
| HS-ETS1-1. Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants. | **Biology Unit 1:** https://drive.google.com/file/d/1mvz8NgDBcOzvcJ_pKhRaVRhmxtKBMEGt/view?usp=sharing<br>**Biology Unit 3:** https://drive.google.com/file/d/15teFCvlsxTaCNwAt_-ztEA2icSfxl2q2/view?usp=sharing<br>**Biology Unit 4:** https://drive.google.com/file/d/1urgYwAMf4iyDP_PfJGD7E107tkfvJoCD/view?usp=sharing<br><br>**In addition to the above connections across each dimension. The following serves as more explicit examples:**<br>In OpenSciEd High School Biology, engineering design standards are integrated into real-world socioscientific and ecological contexts. Students engage with ETS1.A: Defining and Delimiting Engineering Problems in Unit B.2 (Ecosystem Dynamics & Biodiversity) throughout Unit 2 via the phenomenon:<br>Unit B.2: Ecosystem Dynamics & Biodiversity (Fires Unit)<br>•Specific locations for HS-ETS1-1. Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.<br>oIn Lesson 1, Students initially analyze a major global challenge, zombie fires, and through the lesson and subsequent lessons, specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants (lower carbon in the atmosphere).<br>Lesson 1 (Anchoring Phenomenon): Students explore ecosystem management, wildland fires, and human impacts on biodiversity and natural resources. Students are introduced to Arctic Fires using images | **See Biology Unit 1 Assessment System Overview:** https://docs.google.com/document/d/1mKQH7IHHq6YfU7UJoquX-khWcmYBcro-5lyyQiWRQto/edit?usp=drive_link<br>**Biology Unit 3 Assessment System Overview:** https://docs.google.com/document/d/1E_6JaTIzuBuOUyg7T1GLM0d5h5sucVU8qhzpZnPYMgc/edit?usp=drive_link<br>**Biology Unit 4 Assessment System Overview:** https://docs.google.com/document/d/1_oGZ23T_Whm96a_711u0yvt3rjdhiOM-MEHdRxzNMCM/edit?usp=drive_link<br><br>**In addition to the assessment systems connections across each dimension linked above, the following serves as an explicit example:**<br>HS-ETS1-1. Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants. Is assessed with a summative assessment in Lesson 11, B.2 Lesson 11 Teacher Reference Fire Solutions Sample, Part 1 #4, and Part 2: https://drive.google.com/drive/folders/12P-BC_mXM2GLXQt_gBinjJRLJzPWAI4n?usp=drive_link | Does Not Meet Standard | Cannot find where this NVACSS is taught or assessed via the evidence submitted. |
| HS-ETS1-2. Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. | See Biology Unit 2 Elements of NGSS Dimensions | See Biology Unit 2 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. |
| HS-ETS1-3.Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. | See Biology Unit 1 Elements of NGSS Dimensions.<br>See Biology Unit 3 Elements of NGSS Dimensions.<br>See Biology Unit 4 Elements of NGSS Dimensions. | See Biology Unit 1 Assessment System Overview.<br>See Biology Unit 3 Assessment System Overview.<br>See Biology Unit 4 Assessment System Overview. | Meets Standard | There is clear evidence that students evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. |

# Nevada's Academic Content Standards Alignment Form for Biology

| Nevada Academic Content Standards for Biology | Provide Direct Links or Specific Locations Where the Standard is Located in Your Materials. | Provide Direct Links or Specific Locations Where the Standard is Assessed. | **For NDE Use Only** Determination (Meets/Does Not Meet) | **For NDE Use Only** Reviewer Comments/Justification |
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| **HS-LS1 From Molecules to Organisms: Structures and Processes** | | | | |
| 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. | See Biology Unit 3 Elements of NGSS Dimensions | See Biology Unit 3 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students 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. |
| HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. | See Biology Unit 3 Elements of NGSS Dimensions. | See Biology Unit 3 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. |
| HS-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. | See Biology Unit 5 Elements of NGSS Dimensions. | See Biology Unit 5 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. |
| HS-LS1-4. Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms | See Biology Unit 3 Elements of NGSS Dimensions. | See Biology Unit 3 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. |
| HS-LS1-5. Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy. | See Biology Unit 2 Elements of NGSS Dimensions | See Biology Unit 2 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students use a model to illustrate how photosynthesis transforms light energy into stored chemical energy. |
| HS-LS1-6. Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules. | See Biology Unit 2 Elements of NGSS Dimensions | See Biology Unit 2 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules. |

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| 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. | See Biology Unit 2 Elements of NGSS Dimensions | See Biology Unit 2 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students use a model to illustrate that cellular respiration is a chemical process that by 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. |
| **HS-LS2 Ecosystems: Interactions, Energy, and Dynamics** | | | | |
| HS-LS2-1. Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales. | See Biology Unit 1 Elements of NGSS Dimensions | See Biology Unit 1 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales. |
| 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. | See Biology Unit 1 Elements of NGSS Dimensions | See Biology Unit 1 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales. |
| 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. | See Biology Unit 2 Elements of NGSS Dimensions | See Biology Unit 2 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions. |
| HS-LS2-4. Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem. | See Biology Unit 2 Elements of NGSS Dimensions | See Biology Unit 2 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem. |
| 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. | See Biology Unit 2 Elements of NGSS Dimensions | See Biology Unit 2 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere. |
| 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. | See Biology Unit 1 Elements of NGSS Dimensions | See Biology Unit 1 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students 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. |

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| HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity. | See Biology Unit 1 Elements of NGSS Dimensions | See Biology Unit 1 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students design, evaluate, and refine a solution for reducing the impacts of human activities on 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. | See Biology Unit 1 Elements of NGSS Dimensions | See Biology Unit 1 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce. |
| **HS-LS3 Heredity: Inheritance and Variation of Traits** | | | | |
| 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. | See Biology Unit 3 Elements of NGSS Dimensions. | See Biology Unit 3 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring. |
| 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. | See Biology Unit 3 Elements of NGSS Dimensions. | See Biology Unit 3 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students 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. |
| HS-LS3-3. Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population. | See Biology Unit 3 Elements of NGSS Dimensions. | See Biology Unit 3 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population. |
| **HS-LS4 Biological Evolution: Unity and Diversity** | | | | |
| HS-LS4-1. Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence. | See Biology Unit 5 Elements of NGSS Dimensions. | See Biology Unit 5 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence. |

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| 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. | See Biology Unit 4 Elements of NGSS Dimensions | See Biology Unit 4 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students 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. |
| 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. | See Biology Unit 4 Elements of NGSS Dimensions | See Biology Unit 4 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students 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. |
| HS-LS4-4. Construct an explanation based on evidence for how natural selection leads to adaptation of populations. | See Biology Unit 4 Elements of NGSS Dimensions | See Biology Unit 4 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students construct an explanation based on evidence for how natural selection leads to adaptation of populations. |
| 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. | See Biology Unit 4 Elements of NGSS Dimensions | See Biology Unit 4 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students 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. |
| HS-LS4-6. Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity. | See Biology Unit 4 Elements of NGSS Dimensions | See Biology Unit 4 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity. |
| **HS-ETS1 Engineering Design** | | | | |

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| HS-ETS1-1. Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants. | **Biology Unit 1:** https://drive.google.com/file/d/1mvz8NgDBcOzvcJ_pKhRaVRhmxtKBMEGt/view?usp=sharing **Biology Unit 3:** https://drive.google.com/file/d/15teFCvlsxTaCNwAt_-ztEA2icSfxl2q2/view?usp=sharing **Biology Unit 4:** https://drive.google.com/file/d/1urgYwAMf4iyDP_PfJGD7E107tkfvJoCD/view?usp=sharing<br><br>**In addition to the above connections across each dimension. The following serves as more explicit examples:**<br>In OpenSciEd High School Biology, engineering design standards are integrated into real-world socioscientific and ecological contexts. Students engage with ETS1.A: Defining and Delimiting Engineering Problems in Unit B.2 (Ecosystem Dynamics & Biodiversity) throughout Unit 2 via the phenomenon:<br>Unit B.2: Ecosystem Dynamics & Biodiversity (Fires Unit)<br>•Specific locations for HS-ETS1-1. Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.<br>oIn Lesson 1, Students initially analyze a major global challenge, zombie fires, and through the lesson and subsequent lessons, specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants (lower carbon in the atmosphere).<br>Lesson 1 (Anchoring Phenomenon): Students explore ecosystem management, wildland fires, and human impacts on biodiversity and natural resources. Students are introduced to Arctic Fires using images from NASA and an article about Arctic Fires. Student observations and questions are captured on a Notice and Wonder chart (Teacher Edition, pages 34–35). Additional images are provided through an inquiry activity with five dimensions and examined in small groups and students add to their Notice and Wonder chart (Teacher Edition, page 38). A DQB is created with students' questions and used to "generate ideas for how they could go about answering each question" (Teacher Edition, page 55). Students then prioritize the question(s) to determine the question to investigate next | **See Biology Unit 1 Assessment System Overview:** https://docs.google.com/document/d/1mKQH7IHHq6YfU7UJoquX-khWcmYBcro-5lyyQiWRQto/edit?usp=drive_link<br>**Biology Unit 3 Assessment System Overview:** https://docs.google.com/document/d/1E_6JaTIzuBuOUyg7T1GLM0d5h5sucVU8qhzpZnPYMgc/edit?usp=drive_link<br>**Biology Unit 4 Assessment System Overview:** https://docs.google.com/document/d/1_oGZ23T_Whm96a_711u0yvt3rjdhiOM-MEHdRxzNMCM/edit?usp=drive_link<br><br>**In addition to the assessment systems connections across each dimension linked above, the following serves as an explicit example:**<br>HS-ETS1-1. Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants. Is assessed with a summative assessment in Lesson 11, B.2 Lesson 11 Teacher Reference Fire Solutions Sample, Part 1 #4, and Part 2: https://drive.google.com/drive/folders/12P-BC_mXM2GLXQt_gBinjJRLJzPWAI4n?usp=drive_link | Does Not Meet Standard | Cannot find where this NVACSS is taught or assessed via the evidence submitted. |
| HS-ETS1-2. Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. | See Biology Unit 2 Elements of NGSS Dimensions | See Biology Unit 2 Assessment System Overview. | Meets Standard | There is clear evidence in this instructional material that students design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. |
| HS-ETS1-3.Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. | See Biology Unit 1 Elements of NGSS Dimensions. See Biology Unit 3 Elements of NGSS Dimensions. See Biology Unit 4 Elements of NGSS Dimensions. | See Biology Unit 1 Assessment System Overview. See Biology Unit 3 Assessment System Overview. See Biology Unit 4 Assessment System Overview. | Meets Standard | There is clear evidence that students evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. |