BioComm Correlation to the Nevada Academic Content Standards for Principles of Science, Grades 9-12

Scientific Inquiry (Nature of Science Unifying Concept A)
Scientific inquiry is the process by which humans systematically examine the natural world. Scientific inquiry is a human endeavor and involves observation, reasoning, insight, energy, skill, and creativity. Scientific inquiry is used to formulate and test explanations of nature through observation, experiments, and theoretical or mathematical models. Scientific explanations and evidence are constantly reviewed and examined by others. Questioning, response to criticism and open communication are integral to the process of science.

Indicator	**Location/Page where Standard is found**
N.12.A.1. Students know tables, charts, illustrations and graphs can be used in making arguments and claims in oral and written presentations.	23-25; 27; 29-30; 47-48; 51; 54-55; 78-80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396.
N.12.A.2. Students know scientists maintain a permanent record of procedures, data, analyses, decisions, and understandings of scientific investigations.	31; 49; 50; 51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396;
N.12.A.3. Students know repeated experimentation allows for statistical analysis and unbiased conclusions.	31; 49; 50 #4; 51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396. 544-546
N.12.A.4. Students know how to safely conduct an original scientific investigation using the appropriate tools and technology.	23-25; 27; 29-30; 47-48; 51; 54-55; 78-80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396; 538; 555-557; 546; 551.

N.12.A.5. Students know models and modeling can be used to identify and predict cause-effect relationships.	13-15; 20; 22; 35-40; 43; 56; 59; 61; 99; 101-104; 166-167; 186-187; 209; 211; 220; 236; 245; 585; 665.
N.12.A.6. Students know organizational schema can be used to represent and describe relationships of sets.	31; 49; 50; 51; 54-55; 80; 85; 87; 97; 103; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396; 510; 522-525.

Science, Technology, and Society (Nature of Science Unifying Concept B)

Technology defines a society or era. It can shape the environment in which people live, and it has increasingly become a larger part of people's lives. While many of technology's effects on society are regarded as desirable, other effects are seen as less desirable. These concepts are shared across subject areas such as science, math, technology, social studies and language arts. The development and use of technology affects society and the environment in which we live, and, at the same time, society influences the development of technology and its impact on culture.

Indicator	**Location/Page where Standard is found**
N.12.B: 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 society influenced one another in both positive and negative ways.	31; 49; 50 #4; 51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269; 378-380; 386-398; 392-396. 602-606; 621-626.
N.12.B.2 Students know consumption patterns, conservation efforts, and cultural or social practices in countries have varying environmental impacts.	1-10; 13; 16-22; 56-60; 72-77; 117-118; 126; 140-141; 143-150; 156; 165-168; 174-178; 183-185; 188; 426-427; 468-471; 452; 472; 492-496; 586-589; 593-597; 608-617; 621-626; 636-639; 641-645; 707-711; 716-729; 736-742; 746-753.
N.12.B.3. Students know the influence of ethics on scientific enterprise.	663-665.

N.12.B.4. Students know scientific knowledge builds on previous information.	31; 49-51; 54-55; 80; 115-116; 124-125; 203-205; 211-215; 225-227; 232-235; 243-244; 253-255; 257-269.

LIFE SCIENCE

Heredity (Life Science Unifying Concept A)
Heredity is the genetic passing of a set of instructions from generation to generation. These instructions are encoded as DNA and may manifest themselves as characteristics. Some characteristics are inherited, and some result from interactions with the environment.

Indicator	**Location/Page where Standard is found**
<u>L.12.A:</u> Students understand how genetic information is passed from one generation to another.	
L.12.A.1. Students know genetic information passed from parents to offspring is coded in the DNA molecule.	290; 329-337; 347-349; 285-291; 299-303; 307; 310-316; 329-338; 344-346.
L.12.A.2. Students know DNA molecules provide instructions for assembling protein molecules.	310-312; 318-321; 338; 344-346; 354.
L.12.A.3. Students know all body cells in an organism develop from a single cell and contain essentially identical genetic instructions.	292-298; 292-297; 301-310.
L.12.A.4. Students know several causes and effects of somatic versus sex cell mutations.	310-312; 318-321; 338; 344-346; 354.
L.12.A.5. Students know how to predict patterns of inheritance.	299-303; 290-292; 312-316; 339; 316-323; 669-671; 678-681; 310-320.

Structure of Life (Life Science Unifying Concept B)
All living things are composed of cells. Cells range from very simple to very complex and have structures which perform functions for the organism. Cells and structures can be damaged or fail because of intrinsic failures or disease.

Indicator	Location/Page where Standard is found
<u>L.12.B:</u> Students understand that all life forms, at all levels of organization, use specialized structure and similar processes to meet life's needs.	
L.12.B.1 Students know cell structures and their functions.	208-216
L.12.B..2. Students know the human body has a specialized anatomy and physiology composed of an hierarchical arrangement of differentiated cells.	307-308
L.12.B..3. Students know disease disrupts the equilibrium that exists in a healthy organism.	243-254

Organisms and Their Environment (Life Science Unifying Concept C)

A variety of ecosystems and communities exist on Earth. Ecosystems are dynamic interactions of organisms and their environment. Ecosystems have distinct characteristics and components that allow certain organisms to thrive. Change in one or more components can affect the entire ecosystem.

Indicator	Location/Page where Standard is found
<u>L.12.C:</u> 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 environment	2-12; 14-15; 18.22; 45; 49-54; 58-61; 72-77; 94-105; 118-120; 122-123; 126-127; 140-178; 180-189; 547-549. 459; 472-479; 459; 472-479.
L.12.C.2. Students know how changes in an ecosystem can affect biodiversity and biodiversity's contribution to an ecosystem's stability.	1-10; 13; 16-22; 56-60; 72-77; 104-105; 117-118; 126; 140-141; 143-150; 156; 165-168; 174-178; 183-185; 188; 426-427; 468-471; 452; 472; 492-496; 586-589; 593-597; 608-617; 623-626; 636-639; 641-645; 707-711; 716-729; 736-742; 746-753.
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.	1-5; 2-10; 13; 16-22; 26; 32-43; 56-60; 72-77; 86-88; 91-92; 98-104; 107-111; 117-118; 126; 140-141; 156; 183-185; 188; 426-427; 468-471;

	452; 472; 492-496; 502; 586-589; 593-597; 608-617; 623-626; 636-639; 641-645; 707-711; 716-729; 736-742; 746-753.
L.12.C.4. Students know the unique geologic, hydrologic, climatic, and biological characteristics of Nevada's bioregions.	

Diversity of Life (Life Science Unifying Concept D)
Evidence suggests that living things change over periods of time. These changes can be attributed to genetic and/or environmental influences. This process of change over time is called biological evolution. The diversity of life on Earth is classified using objective characteristics. Scientific classification uses a hierarchy of groups and subgroups based on similarities that reflect evolutionary relationships.

Indicator	**Location/Page where Standard is found**
<u>L.12.D:</u> Students understand biological evolution and diversity of life.	
L.12.D.1. Students know organisms can be classified based on evolutionary relationships.	436-442; 702-705.
L.12.D.2. Students know similarity of DNA sequences gives evidence of relationships between organisms.	347-348; 660-662.
L.12.D.3. Students know the fossil record gives evidence for natural selection and its evolutionary consequences.	433; 457-458**,**
L.12.D.4. Students know the extinction of species can be a natural process.	162-168; 428-433; 452-459; 462-464; 666-668; 702-705.
L.12.D.5. Students know biological evolution explains diversity of life.	430-440.
L.12.D.6. Students know the concepts of natural and artificial selection.	162-168; 428-433; 452-459; 462-464; 666-668; 576-579; 478.