

# Science at the Cienega

## Correlated New Mexico Science Standards

### New Mexico Grade 6 Science Standards

#### Strand I: Scientific Thinking and Practice

**Standard I:** Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.

**5-8 Benchmark I:** Use scientific methods to develop questions, design and conduct experiments using appropriate technologies, analyze and evaluate results, make predictions, and communicate findings.

2. Examine the reasonableness of data supporting a proposed scientific explanation.
3. Justify predictions and conclusions based on data.

**5-8 Benchmark II:** Understand the processes of scientific investigation and how scientific inquiry results in scientific knowledge.

2. Understand that scientific investigations use common processes that include the collection of relevant data and observations, accurate measurements, the identification and control of variables, and logical reasoning to formulate hypotheses and explanations.
3. Understand that not all investigations result in defensible scientific explanations.

**5-8 Benchmark III:** Use mathematical ideas, tools, and techniques to understand scientific knowledge.

1. Evaluate the usefulness and relevance of data to an investigation.
2. Use probabilities, patterns, and relationships to explain data and observations.

#### Strand II: Content of Science

**Standard II (Life Science):** Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.

**5-8 Benchmark I:** Explain the diverse structures and functions of living things and the complex relationships between living things and their environments.

1. Understand how organisms interact with their physical environments to meet their needs (i.e., food, water, air) and how the water cycle is essential to most living systems.
2. Describe how weather and geologic events (e.g., volcanoes, earthquakes) affect the function of living systems.
3. Describe how organisms have adapted to various environmental conditions.

**5-8 Benchmark II:** Understand how traits are passed from one generation to the next and how species evolve.

2. Describe how species have responded to changing environmental conditions over time (e.g., extinction, adaptation).

#### Strand III: Science and Society

**Standard I:** Understand how scientific discoveries, inventions, practices, and knowledge influence,

and are influenced by, individuals and societies.

**5-8 Benchmark I:** Explain how scientific discoveries and inventions have changed individuals and societies.

2. Describe the technologies responsible for revolutionizing information processing and communications (e.g., computers, cellular phones, Internet).

## **Science at the Cienega Correlated New Mexico Science Standards**

### **New Mexico Grade 7 Science Standards**

#### **Strand I: Scientific Thinking and Practice**

**Standard I:** Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.

**5-8 Benchmark I:** Use scientific methods to develop questions, design and conduct experiments using appropriate technologies, analyze and evaluate results, make predictions, and communicate findings.

**5-8 Benchmark II:** Understand the processes of scientific investigation and how scientific inquiry results in scientific knowledge.

2. Critique procedures used to investigate a hypothesis.
3. Analyze and evaluate scientific explanations.

**5-8 Benchmark III:** Use mathematical ideas, tools, and techniques to understand scientific knowledge.

1. Understand that the number of data (sample size) influences the reliability of a prediction.
2. Use mathematical expressions to represent data and observations collected in scientific investigations.

#### **Strand II: Content of Science**

**Standard I (Physical Science):** Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.

**5-8 Benchmark I:** Know the forms and properties of matter and how matter interacts.

1. Explain how matter is transferred from one organism to another and between organisms and their environment (e.g., consumption, the water cycle, the carbon cycle, the nitrogen cycle).

**5-8 Benchmark II:** Explain the physical processes involved in the transfer, change, and conservation of energy.

1. Know how various forms of energy are transformed through organisms and ecosystems, including:
  - sunlight and photosynthesis
  - energy transformation in living systems (e.g., cellular processes changing chemical energy to heat and motion)
  - effect of mankind's use of energy and other activities on living systems (e.g., global warming, water quality).

#### **Strand II: Content of Science**

**Standard II (Life Science):** Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.

**5-8 Benchmark I:** Explain the diverse structures and functions of living things and the complex relationships between living things and their environments.

### **Populations and Ecosystems**

1. Identify the living and nonliving parts of an ecosystem and describe the relationships among these components.
2. Explain biomes (i.e., aquatic, desert, rainforest, grasslands, tundra) and describe the New Mexico biome.
3. Explain how individuals of species that exist together interact with their environment to create an ecosystem (e.g., populations, communities, niches, habitats, food webs).
4. Explain the conditions and resources needed to sustain life in specific ecosystems.
5. Describe how the availability of resources and physical factors limit growth (e.g., quantity of light and water, range of temperature, composition of soil) and how the water, carbon, and nitrogen cycles contribute to the availability of those resources to support living systems.

### **Biodiversity**

6. Understand how diverse species fill all niches in an ecosystem.

**5-8 Benchmark II:** Understand how traits are passed from one generation to the next and how species evolve.

### **Reproduction**

4. Know that organisms that sexually reproduce fertile offspring are members of the same species.

### **Biological Evolution**

10. Identify adaptations that favor the survival of organisms in their environments (e.g., camouflage, shape of beak).
12. Explain how species adapt to changes in the environment or become extinct and that extinction of species is common in the history of living things.

## **Strand II: Content of Science**

**Standard III (Earth and Space Science):** Understand the structure of Earth, the solar system, and the universe, the interconnections among them, and the processes and interactions of Earth's systems.

**5-8 Benchmark II:** Describe the structure of Earth and its atmosphere and explain how energy, matter, and forces shape Earth's systems.

3. Know that changes to ecosystems sometimes decrease the capacity of the environment to support some life forms and are difficult and/or costly to remediate.

# Science at the Cienega

## Correlated New Mexico Science Standards

### New Mexico Grade 8 Science Standards

#### Strand I: Scientific Thinking and Practice

**Standard I:** Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.

**5-8 Benchmark I:** Use scientific methods to develop questions, design and conduct experiments using appropriate technologies, analyze and evaluate results, make predictions, and communicate findings.

1. Evaluate the accuracy and reproducibility of data and observations.
2. Use a variety of technologies to gather, analyze and interpret scientific data.

**5-8 Benchmark II:** Understand the processes of scientific investigation and how scientific inquiry results in scientific knowledge.

1. Examine alternative explanations for observations.
2. Describe ways in which science differs from other ways of knowing and from other bodies of knowledge (e.g., experimentation, logical arguments, skepticism).
3. Know that scientific knowledge is built on questions posed as testable hypotheses, which are tested until the results are accepted by peers.

**5-8 Benchmark III:** Use mathematical ideas, tools, and techniques to understand scientific knowledge.

1. Use mathematical expressions and techniques to explain data and observations and to communicate findings (e.g., formulas and equations, significant figures, graphing, sampling, estimation, mean).

#### Strand II: Content of Science

**Standard II (Life Science):** Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.

**5-8 Benchmark I:** Explain the diverse structures and functions of living things and the complex relationships between living things and their environments.

1. Describe how matter moves through ecosystems (e.g., water cycle, carbon cycle).
2. Describe how energy flows through ecosystems (e.g., sunlight, green plants, food for animals).
3. Explain how a change in the flow of energy can impact an ecosystem (e.g., the amount of sunlight available for plant growth, global climate change).

#### Strand III: Science and Society

**Standard I:** Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.

**5-8 Benchmark I:** Explain how scientific discoveries and inventions have changed individuals and societies.

2. Describe how scientific information can help to explain environmental phenomena (e.g., floods,

earthquakes, volcanoes, fire, extreme weather).