

**Inquiry Investigations™**  
**Cellular World MODULE - 1271974**  
**Grades: 7-10**

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

<b>STRAND / CONTENT STANDARD</b>	<b>NM.I.</b>	<b>Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.</b>
<b>BENCHMARK</b>	<b>I-A.</b>	Use scientific methods to develop questions, design and conduct experiments using appropriate technologies, analyze and evaluate results, make predictions, and communicate findings.
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>I-A. 1a.</b>	<p>Use a variety of print and web resources to collect information, inform investigations, and answer a scientific question or hypothesis.</p> <ul style="list-style-type: none"> <li>• Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>• Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>• Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>• Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>• Why Cells Aren't Big: Virtual Lab</li> </ul>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>I-A. 2a.</b>	<p>Use models to explain the relationships between variables being investigated.</p> <ul style="list-style-type: none"> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> </ul>

		<ul style="list-style-type: none"> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> </ul>
<b>STRAND / CONTENT STANDARD</b>	<b>NM.I.</b>	<b>Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.</b>
<b>BENCHMARK</b>	<b>I-B.</b>	<b>Understand the processes of scientific investigation and how scientific inquiry results in scientific knowledge.</b>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>I-B.2a.</b>	<p>Critique procedures used to investigate a hypothesis.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>I-B.3a.</b>	<p>Analyze and evaluate scientific explanations.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> </ul>

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<b>STRAND / CONTENT STANDARD</b>	<b>NM.I.</b>	<b>Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.</b>
<b>BENCHMARK</b>	<b>I-C.</b>	<b>Use mathematical ideas, tools, and techniques to understand scientific knowledge.</b>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>I-C.2a.</b>	<p>Use mathematical expressions to represent data and observations collected in scientific investigations.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> </ul>

		<ul style="list-style-type: none"> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-C.3a.	<p>Select and use an appropriate model to examine a phenomenon.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.
BENCHMARK	II-A.	Know the forms and properties of matter and how matter interacts.
PERFORMANCE STANDARD / PROFICIENCY	II-A.4a.	<p>Describe how substances react chemically in characteristic ways to form new substances (compounds) with different properties (e.g., carbon and oxygen combine to form carbon dioxide in respiration).</p> <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
PERFORMANCE STANDARD /	II-A.5a.	Know that chemical reactions are essential to life processes.

PROFICIENCY		<ul style="list-style-type: none"> <li>• Cell Growth: Teacher Resource CD</li> <li>• Cell Process: Teacher Resource CD</li> <li>• Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>• Cell Structure and Function: Teacher Resource CD</li> <li>• Cells and Energy: Teacher Resource CD</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>• Why Cells Aren't Big: Virtual Lab</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.
BENCHMARK	II-B.	Explain the physical processes involved in the transfer, change, and conservation of energy.
PERFORMANCE STANDARD / PROFICIENCY	II-B.1a.	<p>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); and effect of mankind's use of energy and other activities on living systems (e.g., global warming, water quality).</p> <ul style="list-style-type: none"> <li>• Cell Structure and Function: Teacher Resource CD</li> <li>• Cells and Energy: Teacher Resource CD</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.
BENCHMARK	II-C.	Describe and explain forces that produce motion in objects.
PERFORMANCE STANDARD / PROFICIENCY	II-C.1a.	<p>Know that forces cause motion in living systems, including: the principle of a lever and how it gives mechanical advantage to a muscular/skeletal system to lift objects; and forces in specific systems in the human body (e.g., how the heart generates blood pressure, how muscles contract and expand to produce motion).</p> <ul style="list-style-type: none"> <li>• Cell Types and Organization: Teacher Resource CD</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.

BENCHMARK	II-A.	Explain the diverse structures and functions of living things and the complex relationships between living things and their environments.
PERFORMANCE STANDARD / PROFICIENCY	II-A.4a.	Populations and Ecosystems: Explain the conditions and resources needed to sustain life in specific ecosystems. <ul style="list-style-type: none"> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.
BENCHMARK	II-B.	Understand how traits are passed from one generation to the next and how species evolve.
PERFORMANCE STANDARD / PROFICIENCY	II-B.1a.	Reproduction: Know that reproduction is a characteristic of all living things and is essential to the continuation of a species. <ul style="list-style-type: none"> <li>Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-B.2a.	Reproduction: Identify the differences between sexual and asexual reproduction. <ul style="list-style-type: none"> <li>Cell Growth: Teacher Resource CD</li> <li>Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-B.3a.	Reproduction: Know that, in sexual reproduction, an egg and sperm unite to begin the development of a new individual. <ul style="list-style-type: none"> <li>Cell Growth: Teacher Resource CD</li> <li>Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-B.10a.	Biological Evolution: Identify adaptations that favor the survival of organisms in their environments (e.g., camouflage, shape of beak). <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-B.12a.	Biological Evolution: 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.

		<ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> </ul>
<b>STRAND / CONTENT STANDARD</b>	<b>NM.II.</b>	<b>Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.</b>
<b>BENCHMARK</b>	<b>II-C.</b>	<b>Understand the structure of organisms and the function of cells in living systems.</b>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-C.1a.</b>	<p>Structure of Organisms: Understand that organisms are composed of cells and identify unicellular and multicellular organisms.</p> <ul style="list-style-type: none"> <li>Cell Growth: Teacher Resource CD</li> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-C.2a.</b>	<p>Structure of Organisms: Explain how organs are composed of tissues of different types of cells (e.g., skin, bone, muscle, heart, intestines).</p> <ul style="list-style-type: none"> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> </ul>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-C.3a.</b>	<p>Function of Cells: Understand that many basic functions of organisms are carried out in cells, including: growth and division to produce more cells (mitosis); specialized functions of cells (e.g., reproduction, nerve-signal transmission, digestion, excretion, movement, transport of oxygen).</p> <ul style="list-style-type: none"> <li>Cell Growth: Teacher Resource CD</li> <li>Cell Process: Teacher Resource CD</li> <li>Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>Cell Structure and Function: Teacher Resource CD</li> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test</li> </ul>

		<p>for Catalase</p> <ul style="list-style-type: none"> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-C.4a.	<p>Function of Cells: Compare the structure and processes of plant cells and animal cells.</p> <ul style="list-style-type: none"> <li>Cell Growth: Teacher Resource CD</li> <li>Cell Process: Teacher Resource CD</li> <li>Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>Cell Structure and Function: Teacher Resource CD</li> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-C.5a.	<p>Function of Cells: Describe how some cells respond to stimuli (e.g., light, heat, pressure, gravity).</p> <ul style="list-style-type: none"> <li>Cell Growth: Teacher Resource CD</li> <li>Cell Process: Teacher Resource CD</li> <li>Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>Cell Structure and Function: Teacher Resource CD</li> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> </ul>

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<p>PERFORMANCE STANDARD / PROFICIENCY</p>	<p>II- C.6a.</p>	<p>Function of Cells: Describe how factors (radiation, UV light, drugs) can damage cellular structure or function.</p> <ul style="list-style-type: none"> <li>• Cell Growth: Teacher Resource CD</li> <li>• Cell Process: Teacher Resource CD</li> <li>• Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>• Cell Structure and Function: Teacher Resource CD</li> <li>• Cell Types and Organization: Teacher Resource CD</li> <li>• Cells and Energy: Teacher Resource CD</li> <li>• Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>• Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>• Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>• Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> </ul>

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**Grade 8**

<b>STRAND / CONTENT STANDARD</b>	<b>NM.I.</b>	<b>Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.</b>
<b>BENCHMARK</b>	<b>I-A.</b>	Use scientific methods to develop questions, design and conduct experiments using appropriate technologies, analyze and evaluate results, make predictions, and communicate findings.
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>I-A.1a.</b>	<p>Evaluate the accuracy and reproducibility of data and observations.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>I-A.2a.</b>	<p>Use a variety of technologies to gather, analyze and interpret scientific data.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> </ul>

		<ul style="list-style-type: none"> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
<b>STRAND / CONTENT STANDARD</b>	<b>NM.I.</b>	<b>Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.</b>
<b>BENCHMARK</b>	<b>I-B.</b>	<b>Understand the processes of scientific investigation and how scientific inquiry results in scientific knowledge.</b>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>I-B.1a.</b>	<p>Examine alternative explanations for observations.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> </ul>

		<ul style="list-style-type: none"> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-B.2a.	<p>Describe ways in which science differs from other ways of knowing and from other bodies of knowledge (e.g., experimentation, logical arguments, skepticism).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-B.3a.	<p>Know that scientific knowledge is built on questions posed as testable hypotheses, which are tested until the results are accepted by peers.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
STRAND / CONTENT STANDARD	NM.I.	Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.

BENCHMARK	I-C.	Use mathematical ideas, tools, and techniques to understand scientific knowledge.
PERFORMANCE STANDARD / PROFICIENCY	I-C.1a.	<p>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).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-C.2a.	<p>Create models to describe phenomena.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.
BENCHMARK	II-A.	Know the forms and properties of matter and how matter interacts.
PERFORMANCE STANDARD / PROFICIENCY	II-A.1a.	<p>Properties of Matter: Know how to use density, boiling point, freezing point, conductivity, and color to identify various substances.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth</li> </ul>

		Curves
PERFORMANCE STANDARD / PROFICIENCY	II-A.3a.	<p>Properties of Matter: Understand the differences among elements, compounds, and mixtures by: classification of materials as elements, compounds, or mixtures; interpretation of chemical formulas; separation of mixtures into compounds by methods including evaporation, filtration, screening, and magnetism.</p> <ul style="list-style-type: none"> <li>• Cells and Energy: Teacher Resource CD</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-A.8a.	<p>Changes in Matter: Describe various familiar physical and chemical changes that occur naturally (e.g., snow melting, photosynthesis, rusting, burning).</p> <ul style="list-style-type: none"> <li>• Cells and Energy: Teacher Resource CD</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-A.9a.	<p>Changes in Matter: Identify factors that influence the rate at which chemical reactions occur (e.g., temperature, concentration).</p> <ul style="list-style-type: none"> <li>• Cells and Energy: Teacher Resource CD</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-A.10a.	<p>Changes in Matter: Know that chemical reactions can absorb energy (endothermic reactions) or release energy (exothermic reactions).</p> <ul style="list-style-type: none"> <li>• Cells and Energy: Teacher Resource CD</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.
BENCHMARK	II-A.	Explain the diverse structures and functions of living things and the complex relationships between living things and their environments.
PERFORMANCE STANDARD / PROFICIENCY	II-A.2a.	<p>Describe how energy flows through ecosystems (e.g., sunlight, green plants, food for animals).</p> <ul style="list-style-type: none"> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.
BENCHMARK	II-B.	Understand how traits are passed from one generation to the next and how species evolve.

PERFORMANCE STANDARD / PROFICIENCY	II-B.1a.	<p>Understand that living organisms are made mostly of molecules consisting of a limited number of elements (e.g., carbon, hydrogen, nitrogen, oxygen).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-B.2a.	<p>Identify DNA as the chemical compound involved in heredity in living organisms.</p> <ul style="list-style-type: none"> <li>Cell Structure and Function: Teacher Resource CD</li> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.
BENCHMARK	II-C.	Understand the structure of organisms and the function of cells in living systems.
PERFORMANCE STANDARD / PROFICIENCY	II-C.1a.	<p>Describe how cells use chemical energy obtained from food to conduct cellular functions (i.e., respiration).</p> <ul style="list-style-type: none"> <li>Cell Growth: Teacher Resource CD</li> <li>Cell Process: Teacher Resource CD</li> <li>Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>Cell Structure and Function: Teacher Resource CD</li> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't</li> </ul>

		<p>Big</p> <ul style="list-style-type: none"> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-C.2a.	<p>Explain that photosynthesis in green plants captures the energy from the sun and stores it chemically.</p> <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-C.3a.	<p>Describe how chemical substances can influence cellular activity (e.g., pH).</p> <ul style="list-style-type: none"> <li>Cell Growth: Teacher Resource CD</li> <li>Cell Process: Teacher Resource CD</li> <li>Cell Structure and Function: Teacher Resource CD</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	Content of Science: 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.
BENCHMARK	II-B.	Describe the structure of Earth and its atmosphere and explain how energy, matter, and forces shape Earth's systems.
PERFORMANCE STANDARD / PROFICIENCY	II-B.2a.	<p>Understand the unique role water plays on Earth, including: ability to remain liquid at most Earth temperatures; properties of water related to processes in the water cycle (evaporation, condensation, precipitation, surface run-off, percolation); dissolving of minerals and gases and transport to the oceans; fresh and salt water in oceans, rivers, lakes, and glaciers; reactant in photosynthesis.</p> <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> </ul>

### Grade 9

STRAND / CONTENT STANDARD	NM.I.	Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.
BENCHMARK	I-A.	Use accepted scientific methods to collect, analyze, and interpret data and observations and to design and conduct scientific investigations and communicate results.
PERFORMANCE	I-A.1a.	Describe the essential components of an investigation, including appropriate methodologies,

STANDARD / PROFICIENCY	<p>proper equipment, and safety precautions.</p> <ul style="list-style-type: none"> <li>• Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>• Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>• Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>• Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>• Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	<p>i-A.2a. Design and conduct scientific investigations that include: testable hypotheses; controls and variables; methods to collect, analyze, and interpret data; results that address hypotheses being investigated; predictions based on results; re-evaluation of hypotheses and additional experimentation as necessary; error analysis.</p> <ul style="list-style-type: none"> <li>• Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>• Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>• Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>• Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> </ul>

		<ul style="list-style-type: none"> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
<p>PERFORMANCE STANDARD / PROFICIENCY</p>	<p>I-A.3a.</p>	<p>Use appropriate technologies to collect, analyze, and communicate scientific data (e.g., computers, calculators, balances, microscopes).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
<p>PERFORMANCE STANDARD / PROFICIENCY</p>	<p>I-A.4a.</p>	<p>Convey results of investigations using scientific concepts, methodologies, and expressions, including: scientific language and symbols; diagrams, charts, and other data displays; mathematical expressions and processes (e.g., mean, median, slope, proportionality); clear, logical, and concise communication; reasoned arguments.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and</li> </ul>

		<p>Animal Cell Organelles</p> <ul style="list-style-type: none"> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-A.5a.	<p>Understand how scientific theories are used to explain and predict natural phenomena (e.g., plate tectonics, ocean currents, structure of atom).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
STRAND / CONTENT STANDARD	NM.I.	<p>Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.</p>
BENCHMARK	I-B.	<p>Understand that scientific processes produce scientific knowledge that is continually evaluated, validated, revised, or rejected.</p>
PERFORMANCE STANDARD / PROFICIENCY	I-B.3a.	<p>Understand how new data and observations can result in new scientific knowledge.</p> <ul style="list-style-type: none"> <li>Cell Types and Organization: Teacher Resource CD</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-B.6a.	<p>Examine the scientific processes and logic used in investigations of past events (e.g., using data from crime scenes, fossils), investigations that can be planned in advance but are only done once (e.g., expensive or time-consuming experiments such as medical clinical trials), and investigations of phenomena that can be repeated easily and frequently.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> </ul>

		<ul style="list-style-type: none"> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
<b>STRAND / CONTENT STANDARD</b>	<b>NM.I.</b>	<b>Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.</b>
<b>BENCHMARK</b>	<b>i-C.</b>	<b>Use mathematical concepts, principles, and expressions to analyze data, develop models, understand patterns and relationships, evaluate findings, and draw conclusions.</b>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>i-C.1a.</b>	<p>Create multiple displays of data to analyze and explain the relationships in scientific investigations.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't</li> </ul>

		<p>Big</p> <ul style="list-style-type: none"> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-C.2a.	<p>Use mathematical models to describe, explain, and predict natural phenomena.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-C.3a.	<p>Use technologies to quantify relationships in scientific hypotheses (e.g., calculators, computer spreadsheets and databases, graphing software, simulations, modeling).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-C.5a.	<p>Use mathematics to express and establish scientific relationships (e.g., scientific notation, vectors, dimensional analysis).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>

		<ul style="list-style-type: none"> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
<b>STRAND / CONTENT STANDARD</b>	<b>NM.II.</b>	<b>The Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.</b>
<b>BENCHMARK</b>	<b>II-A.</b>	<b>Understand the properties, underlying structure, and reactions of matter.</b>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-A.2a.</b>	<p>Properties of Matter: Identify, measure, and use a variety of physical and chemical properties (e.g., electrical conductivity, density, viscosity, chemical reactivity, pH, melting point).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-A.3a.</b>	<p>Properties of Matter: Know how to use properties to separate mixtures into pure substances (e.g., distillation, chromatography, solubility).</p> <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> </ul>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-A.12a.</b>	<p>Chemical Reactions: Know that chemical reactions involve the rearrangement of atoms, and that they occur on many timescales (e.g., picoseconds to millennia).</p> <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-A.14a.</b>	<p>Chemical Reactions: Know how to express chemical reactions with balanced equations that show: conservation of mass; products of common reactions.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> </ul>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-A.15a.</b>	<p>Chemical Reactions: Describe how the rate of chemical reactions depends on many factors that include temperature, concentration, and the presence of catalysts.</p> <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
<b>STRAND / CONTENT STANDARD</b>	<b>NM.II.</b>	<b>The Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.</b>
<b>BENCHMARK</b>	<b>II-A.</b>	<b>Understand how the survival of species depends on biodiversity and on complex interactions, including the cycling of matter and the flow of energy.</b>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-A.3a.</b>	<p>Ecosystems: Understand and describe how available resources limit the amount of life an ecosystem can support (e.g., energy, water, oxygen, nutrients).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
<b>PERFORMANCE</b>	<b>II-</b>	<b>Energy Flow in the Environment: Explain how matter and energy flow through biological</b>

STANDARD / PROFICIENCY	A.5a.	<p>systems (e.g., organisms, communities, ecosystems), and how the total amount of matter and energy is conserved but some energy is always released as heat to the environment.</p> <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-A.7a.	<p>Energy Flow in the Environment: Understand and explain the principles of photosynthesis (i.e., chloroplasts in plants convert light energy, carbon dioxide, and water into chemical energy).</p> <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-A.8a.	<p>Biodiversity: Understand and explain the hierarchical classification scheme (i.e., domain, kingdom, phylum, class, order, family, genus, species), including: classification of an organism into a category; similarity inferred from molecular structure (DNA) closely matching classification based on anatomical similarities; similarities of organisms reflecting evolutionary relationships.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-A.9a.	<p>Biodiversity: Understand variation within and among species, including: mutations and genetic drift; factors affecting the survival of an organism; natural selection.</p> <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	The Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.
BENCHMARK	II-B.	Understand the genetic basis for inheritance and the basic concepts of biological evolution.
PERFORMANCE STANDARD / PROFICIENCY	II-B.1a.	<p>Genetics: Know how DNA carries all genetic information in the units of heredity called genes, including: the structure of DNA (e.g., subunits A, G, C, T); information-preserving replication of DNA; alteration of genes by inserting, deleting, or substituting parts of DNA.</p> <ul style="list-style-type: none"> <li>Cell Structure and Function: Teacher Resource CD</li> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-B.2a.	<p>Genetics: Use appropriate vocabulary to describe inheritable traits (i.e., genotype, phenotype).</p> <ul style="list-style-type: none"> <li>Cell Growth: Teacher Resource CD</li> <li>Cell Process: Teacher Resource CD</li> <li>Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>Cell Structure and Function: Teacher Resource CD</li> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cells and Energy: Teacher Resource CD</li> </ul>

		<ul style="list-style-type: none"> <li>• Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>• Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>• Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>• Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
<p>PERFORMANCE STANDARD / PROFICIENCY</p>	<p>II-B.6a.</p>	<p>Genetics: Understand the principles of sexual and asexual reproduction, including meiosis and mitosis.</p> <ul style="list-style-type: none"> <li>• Cell Growth: Teacher Resource CD</li> <li>• Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>• Cell Types and Organization: Teacher Resource CD</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
<p>PERFORMANCE STANDARD / PROFICIENCY</p>	<p>II-B.7a.</p>	<p>Genetics: Know that most cells in the human body contain 23 pairs of chromosomes including one pair that determines sex, and that human females have two X chromosomes and human males have an X and a Y chromosome.</p> <ul style="list-style-type: none"> <li>• Cell Growth: Teacher Resource CD</li> <li>• Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>• Cell Structure and Function: Teacher Resource CD</li> <li>• Cell Types and Organization: Teacher Resource CD</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA</li> </ul>

		<p>in Plant Cells</p> <ul style="list-style-type: none"> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-B.9a.	<p>Biological Evolution: Critically analyze the data and observations supporting the conclusion that the species living on Earth today are related by descent from the ancestral one-celled organisms.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	The Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.
BENCHMARK	II-C.	Understand the characteristics, structures, and functions of cells.
PERFORMANCE STANDARD / PROFICIENCY	II-C.1a.	<p>Structure and Function: Know that cells are made of proteins composed of combinations of amino acids.</p> <ul style="list-style-type: none"> <li>Cell Growth: Teacher Resource CD</li> <li>Cell Process: Teacher Resource CD</li> <li>Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>Cell Structure and Function: Teacher Resource CD</li> <li>Cell Types and Organization: Teacher Resource CD</li> </ul>

		<ul style="list-style-type: none"> <li>• Cells and Energy: Teacher Resource CD</li> <li>• Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>• Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>• Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>• Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>• Why Cells Aren't Big: Virtual Lab</li> </ul>
<p>PERFORMANCE STANDARD / PROFICIENCY</p>	<p>II-C.2a.</p>	<p>Structure and Function: Know that specialized structures inside cells in most organisms carry out different functions, including: parts of a cell and their functions (e.g., nucleus, chromosomes, plasma, and mitochondria); storage of genetic material in DNA; similarities and differences between plant and animal cells; prokaryotic and eukaryotic cells.</p> <ul style="list-style-type: none"> <li>• Cell Growth: Teacher Resource CD</li> <li>• Cell Process: Teacher Resource CD</li> <li>• Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>• Cell Structure and Function: Teacher Resource CD</li> <li>• Cell Types and Organization: Teacher Resource CD</li> <li>• Cells and Energy: Teacher Resource CD</li> <li>• Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>• Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>• Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>• Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> </ul>

		<ul style="list-style-type: none"> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>• Why Cells Aren't Big: Virtual Lab</li> </ul>
<p>PERFORMANCE STANDARD / PROFICIENCY</p>	<p>II-C.3a.</p>	<p>Structure and Function: Describe the mechanisms for cellular processes (e.g., energy production and storage, transport of molecules, waste disposal, synthesis of new molecules).</p> <ul style="list-style-type: none"> <li>• Cell Growth: Teacher Resource CD</li> <li>• Cell Process: Teacher Resource CD</li> <li>• Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>• Cell Structure and Function: Teacher Resource CD</li> <li>• Cells and Energy: Teacher Resource CD</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>• Why Cells Aren't Big: Virtual Lab</li> </ul>
<p>PERFORMANCE STANDARD / PROFICIENCY</p>	<p>II-C.4a.</p>	<p>Structure and Function: Know how the cell membrane controls which ions and molecules enter and leave the cell based on membrane permeability and transport (i.e., osmosis, diffusion, active transport, passive transport).</p> <ul style="list-style-type: none"> <li>• Cell Process: Teacher Resource CD</li> <li>• Cell Structure and Function: Teacher Resource CD</li> <li>• Cell Types and Organization: Teacher Resource CD</li> <li>• Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> </ul>

		<ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-C.5a.	<p>Structure and Function: Explain how cells differentiate and specialize during the growth of an organism, including: differentiation, regulated through the selected expression of different genes; specialized cells, response to stimuli (e.g., nerve cells, sense organs).</p> <ul style="list-style-type: none"> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-C.7a.	<p>Biochemical Mechanisms: Describe how most cell functions involve chemical reactions, including: promotion or inhibition of biochemical reactions by enzymes; processes of respiration (e.g., energy production, ATP); communication from cell to cell by secretion of a variety of chemicals (e.g., hormones).</p> <ul style="list-style-type: none"> <li>Cell Structure and Function: Teacher Resource CD</li> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	The Content of Science: 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.
BENCHMARK	II-A.	Examine the scientific theories of the origin, structure, contents, and evolution of the solar system and the universe, and their interconnections.
PERFORMANCE STANDARD / PROFICIENCY	II-A.7a.	<p>Examine the role that New Mexico research facilities play in current space exploration (e.g., Very Large Array, Goddard Space Center).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
STRAND / CONTENT STANDARD	NM.III.	Science and Society: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.
BENCHMARK	III-A.	Examine and analyze how scientific discoveries and their applications affect the world, and explain how societies influence scientific investigations and applications.
PERFORMANCE STANDARD / PROFICIENCY	III-A.2a.	<p>Science and Technology: Understand how advances in technology enable further advances in science (e.g., microscopes and cellular structure; telescopes and understanding of the universe).</p> <ul style="list-style-type: none"> <li>Cell Types and Organization: Teacher Resource CD</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	III-A.3a.	<p>Science and Technology: Evaluate the influences of technology on society (e.g., communications, petroleum, transportation, nuclear energy, computers, medicine, genetic engineering) including both desired and undesired effects, and including some historical examples (e.g., the wheel, the plow, the printing press, the lightning rod).</p>

		<ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	III-A.10a.	<p>Science and Society: Describe major historical changes in scientific perspectives (e.g., atomic theory, germs, cosmology, relativity, plate tectonics, evolution) and the experimental observations that triggered them.</p> <ul style="list-style-type: none"> <li>Cell Types and Organization: Teacher Resource CD</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	III-A.18a.	<p>Science and Individuals: Understand that scientists have characteristics in common with other individuals (e.g., employment and career needs, curiosity, desire to perform public service, greed, preconceptions and biases, temptation to be unethical, core values including honesty and openness).</p> <ul style="list-style-type: none"> <li>Cell Types and Organization: Teacher Resource CD</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	III-A.19a.	<p>Science and Individuals: Know that science plays a role in many different kinds of careers and activities (e.g., public service, volunteers, public office holders, researchers, teachers, doctors, nurses, technicians, farmers, ranchers).</p> <ul style="list-style-type: none"> <li>Cell Types and Organization: Teacher Resource CD</li> </ul>

**Grade 10**

STRAND / CONTENT STANDARD	NM.I.	Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.
BENCHMARK	I-A.	Use accepted scientific methods to collect, analyze, and interpret data and observations and to design and conduct scientific investigations and communicate

		results.
PERFORMANCE STANDARD / PROFICIENCY	I-A.1a.	<p>Describe the essential components of an investigation, including appropriate methodologies, proper equipment, and safety precautions.</p> <ul style="list-style-type: none"> <li>• Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>• Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>• Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>• Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>• Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-A.2a.	<p>Design and conduct scientific investigations that include: testable hypotheses; controls and variables; methods to collect, analyze, and interpret data; results that address hypotheses being investigated; predictions based on results; re-evaluation of hypotheses and additional experimentation as necessary; error analysis.</p> <ul style="list-style-type: none"> <li>• Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>• Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>• Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>• Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> </ul>

		<ul style="list-style-type: none"> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
<p>PERFORMANCE STANDARD / PROFICIENCY</p>	<p>I-A.3a.</p>	<p>Use appropriate technologies to collect, analyze, and communicate scientific data (e.g., computers, calculators, balances, microscopes).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
<p>PERFORMANCE STANDARD / PROFICIENCY</p>	<p>I-A.4a.</p>	<p>Convey results of investigations using scientific concepts, methodologies, and expressions, including: scientific language and symbols; diagrams, charts, and other data displays; mathematical expressions and processes (e.g., mean, median, slope, proportionality); clear, logical, and concise communication; reasoned arguments.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell</li> </ul>

		<p>Organization</p> <ul style="list-style-type: none"> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-A.5a.	<p>Understand how scientific theories are used to explain and predict natural phenomena (e.g., plate tectonics, ocean currents, structure of atom).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
STRAND / CONTENT STANDARD	NM.I.	<p>Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.</p>
BENCHMARK	I-B.	<p>Understand that scientific processes produce scientific knowledge that is continually evaluated, validated, revised, or rejected.</p>
PERFORMANCE STANDARD / PROFICIENCY	I-B.3a.	<p>Understand how new data and observations can result in new scientific knowledge.</p> <ul style="list-style-type: none"> <li>Cell Types and Organization: Teacher Resource CD</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-B.6a.	<p>Examine the scientific processes and logic used in investigations of past events (e.g., using data from crime scenes, fossils), investigations that can be planned in advance but are only done once (e.g., expensive or time-consuming experiments such as medical clinical trials), and investigations of phenomena that can be repeated easily and frequently.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA</li> </ul>

		<p>in Plant Cells</p> <ul style="list-style-type: none"> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
<b>STRAND / CONTENT STANDARD</b>	<b>NM.I.</b>	<b>Scientific Thinking and Practice: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.</b>
<b>BENCHMARK</b>	<b>I-C.</b>	<b>Use mathematical concepts, principles, and expressions to analyze data, develop models, understand patterns and relationships, evaluate findings, and draw conclusions.</b>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>I-C.1a.</b>	<p>Create multiple displays of data to analyze and explain the relationships in scientific investigations.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and</li> </ul>

		<p>Fertilization</p> <ul style="list-style-type: none"> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-C.2a.	<p>Use mathematical models to describe, explain, and predict natural phenomena.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-C.3a.	<p>Use technologies to quantify relationships in scientific hypotheses (e.g., calculators, computer spreadsheets and databases, graphing software, simulations, modeling).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	I-C.5a.	<p>Use mathematics to express and establish scientific relationships (e.g., scientific notation, vectors, dimensional analysis).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test</li> </ul>

		<ul style="list-style-type: none"> <li>for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
<b>STRAND / CONTENT STANDARD</b>	<b>NM.II.</b>	<b>The Content of Science: Physical Science: Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.</b>
<b>BENCHMARK</b>	<b>II-A.</b>	<b>Understand the properties, underlying structure, and reactions of matter.</b>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-A.2a.</b>	<p>Properties of Matter: Identify, measure, and use a variety of physical and chemical properties (e.g., electrical conductivity, density, viscosity, chemical reactivity, pH, melting point).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-A.3a.</b>	<p>Properties of Matter: Know how to use properties to separate mixtures into pure substances (e.g., distillation, chromatography, solubility).</p> <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> </ul>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-A.12a.</b>	<p>Chemical Reactions: Know that chemical reactions involve the rearrangement of atoms, and that they occur on many timescales (e.g., picoseconds to millennia).</p> <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-A.14a.</b>	<p>Chemical Reactions: Know how to express chemical reactions with balanced equations that show: conservation of mass; products of common reactions.</p> <ul style="list-style-type: none"> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> </ul>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-A.15a.</b>	<p>Chemical Reactions: Describe how the rate of chemical reactions depends on many factors that include temperature, concentration, and the presence of catalysts.</p> <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
<b>STRAND / CONTENT STANDARD</b>	<b>NM.II.</b>	<b>The Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.</b>
<b>BENCHMARK</b>	<b>II-A.</b>	<b>Understand how the survival of species depends on biodiversity and on complex interactions, including the cycling of matter and the flow of energy.</b>
<b>PERFORMANCE STANDARD / PROFICIENCY</b>	<b>II-A.3a.</b>	<p>Ecosystems: Understand and describe how available resources limit the amount of life an ecosystem can support (e.g., energy, water, oxygen, nutrients).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>

PERFORMANCE STANDARD / PROFICIENCY	II-A.5a.	Energy Flow in the Environment: Explain how matter and energy flow through biological systems (e.g., organisms, communities, ecosystems), and how the total amount of matter and energy is conserved but some energy is always released as heat to the environment. <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-A.7a.	Energy Flow in the Environment: Understand and explain the principles of photosynthesis (i.e., chloroplasts in plants convert light energy, carbon dioxide, and water into chemical energy). <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-A.8a.	Biodiversity: Understand and explain the hierarchical classification scheme (i.e., domain, kingdom, phylum, class, order, family, genus, species), including: classification of an organism into a category; similarity inferred from molecular structure (DNA) closely matching classification based on anatomical similarities; similarities of organisms reflecting evolutionary relationships. <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-A.9a.	Biodiversity: Understand variation within and among species, including: mutations and genetic drift; factors affecting the survival of an organism; natural selection. <ul style="list-style-type: none"> <li>Cells and Energy: Teacher Resource CD</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	The Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.
BENCHMARK	II-B.	Understand the genetic basis for inheritance and the basic concepts of biological evolution.
PERFORMANCE STANDARD / PROFICIENCY	II-B.1a.	Genetics: Know how DNA carries all genetic information in the units of heredity called genes, including: the structure of DNA (e.g., subunits A, G, C, T); information-preserving replication of DNA; alteration of genes by inserting, deleting, or substituting parts of DNA. <ul style="list-style-type: none"> <li>Cell Structure and Function: Teacher Resource CD</li> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-B.2a.	Genetics: Use appropriate vocabulary to describe inheritable traits (i.e., genotype, phenotype). <ul style="list-style-type: none"> <li>Cell Growth: Teacher Resource CD</li> <li>Cell Process: Teacher Resource CD</li> <li>Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>Cell Structure and Function: Teacher Resource CD</li> <li>Cell Types and Organization: Teacher Resource CD</li> </ul>

		<ul style="list-style-type: none"> <li>• Cells and Energy: Teacher Resource CD</li> <li>• Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>• Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>• Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>• Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-B.3a.	<p>Genetics: Explain the concepts of segregation, independent assortment, and dominant/recessive alleles.</p> <ul style="list-style-type: none"> <li>• Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-B.6a.	<p>Genetics: Understand the principles of sexual and asexual reproduction, including meiosis and mitosis.</p> <ul style="list-style-type: none"> <li>• Cell Growth: Teacher Resource CD</li> <li>• Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>• Cell Types and Organization: Teacher Resource CD</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-B.7a.	<p>Genetics: Know that most cells in the human body contain 23 pairs of chromosomes including one pair that determines sex, and that human females have two X chromosomes and human</p>

		<p>males have an X and a Y chromosome.</p> <ul style="list-style-type: none"> <li>• Cell Growth: Teacher Resource CD</li> <li>• Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>• Cell Structure and Function: Teacher Resource CD</li> <li>• Cell Types and Organization: Teacher Resource CD</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> </ul>
<p>PERFORMANCE STANDARD / PROFICIENCY</p>	<p>II-B.9a.</p>	<p>Biological Evolution: Critically analyze the data and observations supporting the conclusion that the species living on Earth today are related by descent from the ancestral one-celled organisms.</p> <ul style="list-style-type: none"> <li>• Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>• Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>• Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>• Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>• Why Cells Aren't Big: Virtual Lab</li> </ul>
<p>STRAND / CONTENT STANDARD</p>	<p>NM.II.</p>	<p>The Content of Science: Life Science: Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.</p>

BENCHMARK	II-C.	Understand the characteristics, structures, and functions of cells.
PERFORMANCE STANDARD / PROFICIENCY	II-C.1a.	<p>Structure and Function: Know that cells are made of proteins composed of combinations of amino acids.</p> <ul style="list-style-type: none"> <li>• Cell Growth: Teacher Resource CD</li> <li>• Cell Process: Teacher Resource CD</li> <li>• Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>• Cell Structure and Function: Teacher Resource CD</li> <li>• Cell Types and Organization: Teacher Resource CD</li> <li>• Cells and Energy: Teacher Resource CD</li> <li>• Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>• Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>• Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>• Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>• Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-C.2a.	<p>Structure and Function: Know that specialized structures inside cells in most organisms carry out different functions, including: parts of a cell and their functions (e.g., nucleus, chromosomes, plasma, and mitochondria); storage of genetic material in DNA; similarities and differences between plant and animal cells; prokaryotic and eukaryotic cells.</p> <ul style="list-style-type: none"> <li>• Cell Growth: Teacher Resource CD</li> <li>• Cell Process: Teacher Resource CD</li> <li>• Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>• Cell Structure and Function: Teacher Resource CD</li> <li>• Cell Types and Organization: Teacher Resource CD</li> <li>• Cells and Energy: Teacher Resource CD</li> <li>• Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>• Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> </ul>

		<ul style="list-style-type: none"> <li>• Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>• Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>• Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>• Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>• Why Cells Aren't Big: Virtual Lab</li> </ul>
<p>PERFORMANCE STANDARD / PROFICIENCY</p>	<p>II-C.3a.</p>	<p>Structure and Function: Describe the mechanisms for cellular processes (e.g., energy production and storage, transport of molecules, waste disposal, synthesis of new molecules).</p> <ul style="list-style-type: none"> <li>• Cell Growth: Teacher Resource CD</li> <li>• Cell Process: Teacher Resource CD</li> <li>• Cell Reproduction and the Cell Cycle: Teacher Resource CD</li> <li>• Cell Structure and Function: Teacher Resource CD</li> <li>• Cells and Energy: Teacher Resource CD</li> <li>• Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>• Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>• Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>• Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>• Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>• Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>• Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>• Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>• Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>• Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>• Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>

		<ul style="list-style-type: none"> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-C.4a.	<p>Structure and Function: Know how the cell membrane controls which ions and molecules enter and leave the cell based on membrane permeability and transport (i.e., osmosis, diffusion, active transport, passive transport).</p> <ul style="list-style-type: none"> <li>Cell Process: Teacher Resource CD</li> <li>Cell Structure and Function: Teacher Resource CD</li> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-C.5a.	<p>Structure and Function: Explain how cells differentiate and specialize during the growth of an organism, including: differentiation, regulated through the selected expression of different genes; specialized cells, response to stimuli (e.g., nerve cells, sense organs).</p> <ul style="list-style-type: none"> <li>Cell Types and Organization: Teacher Resource CD</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	II-C.7a.	<p>Biochemical Mechanisms: Describe how most cell functions involve chemical reactions, including: promotion or inhibition of biochemical reactions by enzymes; processes of respiration (e.g., energy production, ATP); communication from cell to cell by secretion of a variety of chemicals (e.g., hormones).</p> <ul style="list-style-type: none"> <li>Cell Structure and Function: Teacher Resource CD</li> <li>Cells and Energy: Teacher Resource CD</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
STRAND / CONTENT STANDARD	NM.II.	The Content of Science: 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.
BENCHMARK	II-A.	Examine the scientific theories of the origin, structure, contents, and evolution of the solar system and the universe, and their interconnections.
PERFORMANCE STANDARD / PROFICIENCY	II-A.7a.	<p>Examine the role that New Mexico research facilities play in current space exploration (e.g., Very Large Array, Goddard Space Center).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> </ul>
STRAND / CONTENT STANDARD	NM.III.	Science and Society: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.
BENCHMARK	III-A.	Examine and analyze how scientific discoveries and their applications affect the world, and explain how societies influence scientific investigations and applications.

PERFORMANCE STANDARD / PROFICIENCY	III-A.2a.	<p>Science and Technology: Understand how advances in technology enable further advances in science (e.g., microscopes and cellular structure; telescopes and understanding of the universe).</p> <ul style="list-style-type: none"> <li>Cell Types and Organization: Teacher Resource CD</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	III-A.3a.	<p>Science and Technology: Evaluate the influences of technology on society (e.g., communications, petroleum, transportation, nuclear energy, computers, medicine, genetic engineering) including both desired and undesired effects, and including some historical examples (e.g., the wheel, the plow, the printing press, the lightning rod).</p> <ul style="list-style-type: none"> <li>Cellular World Unit 1 Lab 1 Activity 1 Learning About Cell Types</li> <li>Cellular World Unit 1 Lab 1 Activity 2 Learning About Cell Organization</li> <li>Cellular World Unit 2 Lab 2 Activity 1 Comparison of Plant and Animal Cell Organelles</li> <li>Cellular World Unit 2 Lab 2 Activity 2 Identification of DNA and RNA in Plant Cells</li> <li>Cellular World Unit 2 Lab 2 Activity 3 Identification of Mitochondria</li> <li>Cellular World Unit 2 Lab 2 Activity 4 Plant Cell Structure and Function</li> <li>Cellular World Unit 3 Lab 3 Activity 1 Osmoregulation in Cells</li> <li>Cellular World Unit 3 Lab 3 Activity 2 Osmosis and Diffusion in Model Cells</li> <li>Cellular World Unit 4 Lab 4 Activity 1 Investigating Carbon Cycling</li> <li>Cellular World Unit 4 Lab 4 Activity 2 A Closer Look at Catalase</li> <li>Cellular World Unit 4 Lab 4 Activity 3 Investigating Plant Pigments</li> <li>Cellular World Unit 5 Lab 5 Activity 1 Growth and Preparation of Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 2 Observing the Cell Cycle in Onion Roots</li> <li>Cellular World Unit 5 Lab 5 Activity 3 Modeling Mitosis</li> <li>Cellular World Unit 5 Lab 5 Activity 4 Modeling Meiosis and Fertilization</li> <li>Cellular World Unit 6 Lab 6 Activity 1 Understanding Why Cells Aren't Big</li> <li>Cellular World Unit 6 Lab 6 Activity 2 Investigating Cell Growth Curves</li> <li>Cellular World Unit 7 Lab 7 Activity 1 Developing a Biochemical Test for Catalase</li> <li>Why Cells Aren't Big: Virtual Lab</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	III-A.10a.	<p>Science and Society: Describe major historical changes in scientific perspectives (e.g., atomic theory, germs, cosmology, relativity, plate tectonics, evolution) and the experimental observations that triggered them.</p> <ul style="list-style-type: none"> <li>Cell Types and Organization: Teacher Resource CD</li> </ul>
PERFORMANCE STANDARD / PROFICIENCY	III-A.18a.	<p>Science and Individuals: Understand that scientists have characteristics in common with other individuals (e.g., employment and career needs, curiosity, desire to perform public service, greed, preconceptions and biases, temptation to be unethical, core values including honesty and openness).</p> <ul style="list-style-type: none"> <li>Cell Types and Organization: Teacher Resource CD</li> </ul>
PERFORMANCE	III-	<p>Science and Individuals: Know that science plays a role in many different kinds of careers and activities (e.g., public service, volunteers, public office holders, researchers, teachers,</p>

STANDARD / PROFICIENCY	A.19a.	doctors, nurses, technicians, farmers, ranchers). <ul style="list-style-type: none"><li>• Cell Types and Organization: Teacher Resource CD</li></ul>
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