

**Inquiry Investigations™**  
**Kingdoms of Life MODULE - 1294372**  
**Grades: 7-10**

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**Minnesota Academic Standards**  
**Science**  
**Grade 7**

<b>CONTENT STANDARD</b>	<b>MN.I.A.</b>	<b>History and Nature of Science: Scientific World View: The student will understand that science is a way of knowing about the world that is characterized by empirical criteria, logical argument and skeptical review.</b>
<b>PERFORMANCE INDICATOR</b>	<b>I.A.1.</b>	<p>The student will recognize how scientific knowledge is subject to change as new evidence becomes available, or as new theories cause scientists to look at old observations differently.</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Classifying Life</li> </ul>
<b>CONTENT STANDARD</b>	<b>MN.I.B.</b>	<b>History and Nature of Science: Scientific Inquiry: The student will design and conduct scientific investigations.</b>
<b>PERFORMANCE INDICATOR</b>	<b>I.B.3.</b>	<p>The student will write a specific step-by-step procedure for a scientific investigation.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> </ul>

		<ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>Virtual Laboratory: Classifying Living Organisms</li> </ul>
PERFORMANCE INDICATOR	I.B.4.	<p>The student will explain how classroom scientific investigations relate to established scientific principles.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>Virtual Laboratory: Classifying Living Organisms</li> </ul>
CONTENT STANDARD	MN.I.C.	History and Nature of Science: Scientific Enterprise: The student will know that science and technology are human efforts that both influence, and are influenced by society.
PERFORMANCE INDICATOR	I.C.1.	<p>The student will give examples of the development of technology influencing scientific knowledge, and investigation and scientific knowledge influencing the development of technology.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> </ul>
CONTENT STANDARD	MN.I.D.	History and Nature of Science: Historic Perspectives: The student will understand how scientific discovery, culture, societal norms and technology have influenced one another in different time periods.
PERFORMANCE INDICATOR	I.D.1.	<p>The student will cite examples of individuals throughout history who made discoveries and contributions in science and technology.</p> <ul style="list-style-type: none"> <li>Teacher Resource CD: Classifying Life</li> </ul>

<b>CONTENT STANDARD</b>	<b>MN.IV.A.</b>	<b>Life Science: Cells: The student will understand that all organisms are composed of cells that carry on the many functions needed to sustain life.</b>
<b>PERFORMANCE INDICATOR</b>	<b>IV.A.2.</b>	<p>The student will distinguish between single -cellular and multicellular organisms.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Microbes</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> <li>• Teacher Resource CD: Classifying Life</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
<b>PERFORMANCE INDICATOR</b>	<b>IV.A.5.</b>	<p>The student will recognize that cells convert energy from food for the production of molecules necessary for life, and for life processes including cell growth and cell division.</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: A Closer Look at Plants</li> </ul>
<b>CONTENT STANDARD</b>	<b>MN.IV.B.</b>	<b>Life Science: Diversity of Organisms: The student will understand that living systems, at every level of organization, demonstrate the complementary nature of structure and function.</b>
<b>PERFORMANCE INDICATOR</b>	<b>IV.B.1.</b>	The student will explain that individuals are composed of specialized cells, tissues, organs and organ systems that perform specialized functions.

		<ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Microbes</li> <li>• Teacher Resource CD: Classifying Life</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
PERFORMANCE INDICATOR	IV.B.2.	<p>The student will recognize that an organism's body plan and its inability to regulate its internal environment enable it to make or find food, grow and reproduce in a constantly changing environment.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> <li>• Teacher Resource CD: Classifying Life</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
PERFORMANCE INDICATOR	IV.B.3.	<p>The student will recognize that behavioral responses of organisms may be determined by heredity and past experience.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> </ul>
PERFORMANCE INDICATOR	IV.B.4.	<p>The student will use and create dichotomous keys.</p>

		<ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Microbes</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> <li>• Teacher Resource CD: Classifying Life</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
<b>PERFORMANCE INDICATOR</b>	<b>IV.B.5.</b>	<p>The student will use the characteristics of an organism to identify the kingdom to which it belongs.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> </ul>

		<ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Microbes</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> <li>• Teacher Resource CD: Classifying Life</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
<b>CONTENT STANDARD</b>	<b>MN.IV.C.</b>	<b>Life Science: Interdependence of Life: The student will understand that within ecosystems, complex interactions exist between organisms and the physical environment.</b>
<b>PERFORMANCE INDICATOR</b>	<b>IV.C.2.</b>	<p>The student will define a population as all individuals of a species that exist together at a given place and time.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> </ul>
<b>PERFORMANCE INDICATOR</b>	<b>IV.C.3.</b>	<p>The student will define an ecosystem as all populations living together and the physical factors with which they interact.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> </ul>

		<ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> </ul>
PERFORMANCE INDICATOR	IV.C.4.	<p>The student will explain the factors that affect the number and types of organisms an ecosystem can support, including available resources, abiotic and biotic factors and disease.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> </ul>
CONTENT STANDARD	MN.IV.D.	Life Science: Heredity The student will understand that heredity information is contained in genes which are inherited through both sexual and asexual reproduction.
PERFORMANCE INDICATOR	IV.D.5.	<p>The student will comprehend that reproduction is essential for the continuation of a species.</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: A Closer Look at Microbes</li> </ul>
PERFORMANCE INDICATOR	IV.D.6.	<p>The student will compare and contrast the advantages and disadvantages of sexual and asexual reproduction.</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: A Closer Look at Microbes</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> </ul>
CONTENT STANDARD	MN.IV.E.	Life Science: Biological Populations Change Over Time: The student will understand how biological evolution provides a scientific explanation for the fossil record of ancient life forms, as well as for the striking similarities observed among the diverse species of living organisms.
PERFORMANCE	IV.E.3.	The student will explain how biological adaptations in structure,

INDICATOR		<p>function and behavior enhance the reproductive success and survival of a species in a particular environment.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
CONTENT STANDARD	MN.IV.F.	Life Science: Flow of Matter and Energy: The student will understand how the flow of energy and the recycling of matter contribute to a stable ecosystem.
PERFORMANCE INDICATOR	IV.F.1.	<p>The student will know that plants use the energy in light to make sugars out of carbon dioxide and water.</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: A Closer Look at Plants</li> </ul>
PERFORMANCE INDICATOR	IV.F.2.	<p>The student will explain how energy is transferred through food chains and food webs in an ecosystem.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Teacher Resource CD: A Closer Look at Microbes</li> </ul>
PERFORMANCE INDICATOR	IV.F.3.	<p>The student will explain how the amount of useable energy available to organisms' decreases as it passes through a food chain and/or food web.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting</li> </ul>

		<p>Energy to Reproduction</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>Teacher Resource CD: A Closer Look at Microbes</li> <li>Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> </ul>
PERFORMANCE INDICATOR	IV.F.4.	<p>The student will know that the total amount of matter in a closed system remains the same as it is transferred between organisms and the physical environment even though its location or form changes.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> </ul>
PERFORMANCE INDICATOR	IV.F.5.	<p>The student will compare and contrast predator/prey, parasite/host and producer/consumer/decomposer relationships.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>Teacher Resource CD: A Closer Look at Microbes</li> </ul>

**Minnesota Academic Standards  
Science  
Grade 8**

CONTENT STANDARD	MN.I.A.	History and Nature of Science: Scientific World View: The student will understand that science is a way of knowing about the world that is characterized by empirical criteria, logical argument and skeptical review.
PERFORMANCE INDICATOR	I.A.2.	<p>The student will explain the development, usefulness and limitations of scientific models in the explanation and prediction of natural phenomena.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> </ul>

		<ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
<b>CONTENT STANDARD</b>	<b>MN.I.B.</b>	<b>History and Nature of Science: Scientific Inquiry: The student will understand that scientific inquiry is used by scientists to investigate the natural world in systematic ways.</b>
<b>PERFORMANCE INDICATOR</b>	<b>I.B.1.</b>	<p>The student will know that scientific investigations involve the common elements of systematic observations, the careful collection of relevant evidence, logical reasoning and innovation in developing hypotheses and explanations.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
<b>PERFORMANCE INDICATOR</b>	<b>I.B.2.</b>	<p>The student will describe how scientists can conduct investigations in a simple system and make generalizations to more complex systems.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for</li> </ul>

		<p>Pond Microlife</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
<b>CONTENT STANDARD</b>	<b>MN.I.B.</b>	<b>History and Nature of Science: Scientific Inquiry: The student will use multiple skills to design and conduct scientific investigations.</b>
<b>PERFORMANCE INDICATOR</b>	<b>I.B.1.</b>	<p>The student will specify variables to be changed, controlled and measured.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> </ul>
<b>PERFORMANCE INDICATOR</b>	<b>I.B.2.</b>	<p>The student will use sufficient trials and adequate sample size to ensure reliable data.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting</li> </ul>

		<p>and Measurement</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
<b>PERFORMANCE INDICATOR</b>	<b>I.B.3.</b>	<p>The student will use appropriate technology and mathematics skills to access, gather, store, retrieve and organize data.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
<b>CONTENT STANDARD</b>	<b>MN.I.D.</b>	<p>History and Nature of Science: Historic Perspectives: The student will understand how scientific discovery, culture, societal norms and technology have influence done another in different time periods.</p>
<b>PERFORMANCE INDICATOR</b>	<b>I.D.1.</b>	<p>The student will relate personal experiences in scientific investigation</p>

		<p>to the experiences of scientists throughout history.</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Classifying Life</li> </ul>
PERFORMANCE INDICATOR	I.D.2.	<p>The student will cite examples of how science and technology contributed to changes in agriculture, manufacturing, sanitation, medicine, warfare, transportation, information processing or communication.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> </ul>
CONTENT STANDARD	MN.III.A.	<p>Earth and Space Science: Earth Structure and Processes: The student will identify Earth's composition, structure and processes.</p>
PERFORMANCE INDICATOR	III.A.2.	<p>The student will describe how features on the Earth's surface are created and constantly changing through a combination of slow and rapid processes of weathering, erosion, sediment deposition, landslides, volcanic eruptions and earthquakes.</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> </ul>
CONTENT STANDARD	MN.III.B.	<p>Earth and Space Science: The Water Cycle, Weather and Climate: The student will investigate how the atmosphere interacts with the Earth system.</p>
PERFORMANCE INDICATOR	III.B.4.	<p>The student will collect and use data to predict the weather.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> </ul>

		<ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
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**Minnesota Academic Standards  
Science  
Grade 9**

CONTENT STANDARD	MN.I.A.	History and Nature of Science: Scientific World View: The student will understand the nature of scientific ways of thinking and that scientific knowledge changes and accumulates over time.
PERFORMANCE INDICATOR	I.A.2.	<p>The student will be able to explain how scientific and technological innovations as well as new evidence can challenge portions of or entire accepted theories and models including but not limited to cell theory, atomic theory, theory of evolution, plate tectonic theory, germ theory of disease and big bang theory.</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Classifying Life</li> </ul>
PERFORMANCE INDICATOR	I.A.3.	<p>The student will recognize that in order to be valid, scientific knowledge must meet certain criteria including that it: be consistent with experimental, observational and inferential evidence about nature; follow rules of logic and reporting both methods and procedures; and, be falsifiable and open to criticism.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
PERFORMANCE INDICATOR	I.A.4.	<p>The student will explain how traditions of ethics, peer review, conflict and general consensus influences the conduct of science.5.The student</p>

		<p>will recognize that some scientific ideas are incomplete, and opportunity exists in these areas for new advances.</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Classifying Life</li> </ul>
<b>CONTENT STANDARD</b>	<b>MN.I.B.</b>	<b>History and Nature of Science: Scientific Inquiry: The student will design and conduct a scientific investigation.</b>
<b>PERFORMANCE INDICATOR</b>	<b>I.B.1.</b>	<p>The student will design and complete a scientific experiment using scientific methods by determining a testable question, making a hypothesis, designing a scientific investigation with appropriate controls, analyzing data, making conclusions based on evidence and comparing conclusions to the original hypothesis and prior knowledge.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
<b>PERFORMANCE INDICATOR</b>	<b>I.B.2.</b>	<p>The student will distinguish between qualitative and quantitative data.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and</li> </ul>

		<p>Pollination</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
<p><b>PERFORMANCE INDICATOR</b></p>	<p><b>I.B.3.</b></p>	<p>The student will apply mathematics and models to analyze data and support conclusions.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>

PERFORMANCE INDICATOR	I.B.4.	<p>The student will identify possible sources of error and their effects on results.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
CONTENT STANDARD	MN.I.C.	History and Nature of Science: Scientific Enterprise: The student will understand the relationship between science and technology and how both are used.
PERFORMANCE INDICATOR	I.C.2.	<p>The student will provide an example of a need or problem identified by science and solved by engineering or technology.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> </ul>
PERFORMANCE INDICATOR	I.C.3.	<p>The student will provide an example of how technology facilitates new discoveries and the development of scientific knowledge.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> </ul>
CONTENT STANDARD	MN.I.D.	History and Nature of Science: Historic Perspectives: The student will recognize the historical and cultural context of scientific endeavors and how they influence each other.
PERFORMANCE INDICATOR	I.D.1.	The student will be able to trace the development of a scientific advancement, invention or theory and its impact on society.

		<ul style="list-style-type: none"> <li>Teacher Resource CD: Classifying Life</li> </ul>
PERFORMANCE INDICATOR	I.D.3.	<p>The student will compare and contrast the differences between scientific theories and theories from other bodies of knowledge, and the importance of each in a science discussion.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>Virtual Laboratory: Classifying Living Organisms</li> </ul>
CONTENT STANDARD	MN.II.A.	Physical Science: Structure of Matter: The student will understand the nature of matter including its forms, properties and interactions.
PERFORMANCE INDICATOR	II.A.7.	<p>The student will compare and contrast the states of matter in terms of interactions between particles.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>Virtual Laboratory: Classifying Living Organisms</li> </ul>
CONTENT STANDARD	MN.II.B.	Physical Science: Structure of Matter: Chemical Reactions: The student will describe chemical reactions and the factors that influence them.
PERFORMANCE INDICATOR	II.B.2.	<p>The student will explain the influence of temperature, surface area, agitation and catalysts on the rate of a reaction.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> </ul>

		<ul style="list-style-type: none"> <li>Virtual Laboratory: Classifying Living Organisms</li> </ul>
<b>CONTENT STANDARD</b>	<b>MN.III.A.</b>	<b>Earth and Space Science: Earth Structure and Processes: The student will understand that the interactions of the atmosphere, biosphere, lithosphere, hydrosphere and space have resulted in ongoing change of the Earth system over geologic time.</b>
<b>PERFORMANCE INDICATOR</b>	<b>III.A.5.</b>	<p>The student will describe how glaciers, gravity, wind, temperature changes, waves and rivers cause weathering and erosion.</p> <ul style="list-style-type: none"> <li>Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> </ul>
<b>CONTENT STANDARD</b>	<b>MN.IV.A.</b>	<b>Life Sciences: Cells: The student will comprehend that all living things are composed of cells, and that the life processes in a cell are based on molecular interactions.</b>
<b>PERFORMANCE INDICATOR</b>	<b>IV.A.5.</b>	<p>The student will differentiate between the processes of photosynthesis and respiration in terms of energy flow, reactants and products.</p> <ul style="list-style-type: none"> <li>Teacher Resource CD: A Closer Look at Plants</li> </ul>
<b>CONTENT STANDARD</b>	<b>MN.IV.B.</b>	<b>Life Sciences: Diversity of Organisms: The student will classify, compare and contrast the diversity of organisms on Earth and their modes of accommodating the requirements for life.</b>
<b>PERFORMANCE INDICATOR</b>	<b>IV.B.1.</b>	<p>The student will relate the structure, complexity and organization of organ systems to the methods of obtaining, transforming, releasing and eliminating the matter and energy used to sustain the organism.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>Teacher Resource CD: A Closer Look at Animals</li> <li>Teacher Resource CD: A Closer Look at Microbes</li> <li>Teacher Resource CD: Classifying Life</li> <li>Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>Virtual Laboratory: Classifying Living Organisms</li> </ul>
<b>PERFORMANCE INDICATOR</b>	<b>IV.B.2.</b>	<p>The student will recognize that organisms have both innate and learned behavioral responses to internal and external stimuli, including the tropic responses in plants.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> </ul>

		<ul style="list-style-type: none"> <li>Teacher Resource CD: A Closer Look at Plants</li> </ul>
PERFORMANCE INDICATOR	IV.B.3.	<p>The student will use scientific evidence, including the fossil record, homologous structures, embryological development or biochemical similarities, to classify organisms in order to show probable evolutionary relationships and common ancestry.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>Teacher Resource CD: A Closer Look at Animals</li> <li>Teacher Resource CD: A Closer Look at Microbes</li> <li>Teacher Resource CD: A Closer Look at Plants</li> <li>Teacher Resource CD: Classifying Life</li> <li>Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>Virtual Laboratory: Classifying Living Organisms</li> </ul>
CONTENT STANDARD	MN.IV.C.	Life Sciences: Interdependence of Life: The student will describe how the environment and interactions between organisms can affect the number of species and the diversity of species in an ecosystem.
PERFORMANCE INDICATOR	IV.C.1.	<p>The student will describe the factors related to matter and energy in an ecosystem that both influence fluctuations in population size and determine the carrying capacity of a population.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for</li> </ul>

		<p>Pond Microlife</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> </ul>
<p>PERFORMANCE INDICATOR</p>	<p>IV.C.2.</p>	<p>The student will explain how adaptations of species and co-evolution with other species are related to success in an ecosystem.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
<p>PERFORMANCE INDICATOR</p>	<p>IV.C.3.</p>	<p>The student will identify examples of mutualism, commensalism, and parasitism in a stable ecosystem.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> </ul>

		<ul style="list-style-type: none"> <li>• Teacher Resource CD: A Closer Look at Microbes</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> </ul>
PERFORMANCE INDICATOR	IV.C.4.	<p>The student will predict and analyze how a change in an ecosystem, resulting from natural causes, changes in climate, human activity or introduction of invasive species, can affect both the number of organisms in a population and the biodiversity of species in the ecosystem.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
CONTENT STANDARD	MN.IV.D.	Life Sciences: Heredity: The student will explain how inherited characteristics are encoded by genes.
PERFORMANCE INDICATOR	IV.D.5.	<p>The student will describe how genetic information is transmitted from parents to offspring through the processes of meiosis and fertilization as they relate to chromosome recombination and sexual reproduction.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Teacher Resource CD: A Closer Look at Microbes</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> </ul>
CONTENT STANDARD	MN.IV.E.	Life Sciences: Biological Populations Change Over Time: The student will understand how biological evolution provides a scientific explanation for the fossil record of ancient life forms, as well as for the striking molecular similarities observed among the diverse species of living organisms.
PERFORMANCE INDICATOR	IV.E.2.	<p>The student will use the principles of natural selection to explain the differential survival of groups of organisms as a consequence of: The potential for a species to increase its numbers; The genetic variability of offspring due to mutation and recombination of genes; A finite supply of the resources required for life; and, the ensuing selection based on environmental factors of those offspring better able to survive and produce reproductively successful offspring.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> </ul>

		<ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
<b>CONTENT STANDARD</b>	<b>MN.IV.F.</b>	<b>Life Sciences: Flow of Matter and Energy: The student will describe and explain the cycling of matter and flow of energy through an ecosystem's living and non-living components.</b>
<b>PERFORMANCE INDICATOR</b>	<b>IV.F.1.</b>	<p>The student will explain the relationship between abiotic and biotic components of an ecosystem in terms of the cycling of water, carbon, oxygen and nitrogen.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> </ul>
<b>PERFORMANCE INDICATOR</b>	<b>IV.F.2.</b>	<p>The student will know that all matter tends to become more disorganized over time, and that living systems require a continuous input of energy in order to maintain their chemical and physical organizations and prevent death.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Teacher Resource CD: A Closer Look at Microbes</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> </ul>
<b>PERFORMANCE INDICATOR</b>	<b>IV.F.3.</b>	<p>The student will explain that sunlight is transformed into chemical energy by photosynthetic organisms.</p>

		<ul style="list-style-type: none"> <li>Teacher Resource CD: A Closer Look at Plants</li> </ul>
<b>PERFORMANCE INDICATOR</b>	<b>IV.F.5.</b>	<p>The student will understand that matter and energy flow through different levels of organization of living systems, from cells to communities, as well as between living systems and the physical environment as chemical elements are recombined in different ways. Each recombination results in both storage and dissipation of energy.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> </ul>

**Minnesota Academic Standards  
Science  
Grade 10**

<b>CONTENT STANDARD</b>	<b>MN.I.A.</b>	<b>History and Nature of Science: Scientific World View: The student will understand the nature of scientific ways of thinking and that scientific knowledge changes and accumulates over time.</b>
<b>PERFORMANCE INDICATOR</b>	<b>I.A.2.</b>	<p>The student will be able to explain how scientific and technological innovations as well as new evidence can challenge portions of or entire accepted theories and models including but not limited to cell theory, atomic theory, theory of evolution, plate tectonic theory, germ theory of disease and big bang theory.</p> <ul style="list-style-type: none"> <li>Teacher Resource CD: Classifying Life</li> </ul>
<b>PERFORMANCE INDICATOR</b>	<b>I.A.3.</b>	<p>The student will recognize that in order to be valid, scientific knowledge must meet certain criteria including that it: be consistent with experimental, observational and inferential evidence about nature; follow rules of logic and reporting both methods and procedures; and, be falsifiable and open to criticism.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the</li> </ul>

		<p>Behavior of Pill Bugs</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
PERFORMANCE INDICATOR	I.A.4.	<p>The student will explain how traditions of ethics, peer review, conflict and general consensus influences the conduct of science.5.The student will recognize that some scientific ideas are incomplete, and opportunity exists in these areas for new advances.</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: Classifying Life</li> </ul>
CONTENT STANDARD	MN.I.B.	History and Nature of Science: Scientific Inquiry: The student will design and conduct a scientific investigation.
PERFORMANCE INDICATOR	I.B.1.	<p>The student will design and complete a scientific experiment using scientific methods by determining a testable question, making a hypothesis, designing a scientific investigation with appropriate controls, analyzing data, making conclusions based on evidence and comparing conclusions to the original hypothesis and prior knowledge.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River</li> </ul>

		<p>Survey</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
PERFORMANCE INDICATOR	I.B.2.	<p>The student will distinguish between qualitative and quantitative data.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
PERFORMANCE INDICATOR	I.B.3.	<p>The student will apply mathematics and models to analyze data and support conclusions.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting</li> </ul>

		<p>and Measurement</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
PERFORMANCE INDICATOR	I.B.4.	<p>The student will identify possible sources of error and their effects on results.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
CONTENT STANDARD	MN.I.C.	History and Nature of Science: Scientific Enterprise: The student will understand the relationship between science and technology and how both are used.
PERFORMANCE INDICATOR	I.C.2.	The student will provide an example of a need or problem identified by

		<p>science and solved by engineering or technology.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> </ul>
PERFORMANCE INDICATOR	I.C.3.	<p>The student will provide an example of how technology facilitates new discoveries and the development of scientific knowledge.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> </ul>
CONTENT STANDARD	MN.I.D.	<p>History and Nature of Science: Historic Perspectives: The student will recognize the historical and cultural context of scientific endeavors and how they influence each other.</p>
PERFORMANCE INDICATOR	I.D.1.	<p>The student will be able to trace the development of a scientific advancement, invention or theory and its impact on society.</p> <ul style="list-style-type: none"> <li>Teacher Resource CD: Classifying Life</li> </ul>
PERFORMANCE INDICATOR	I.D.3.	<p>The student will compare and contrast the differences between scientific theories and theories from other bodies of knowledge, and the importance of each in a science discussion.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>Virtual Laboratory: Classifying Living Organisms</li> </ul>
CONTENT	MN.II.A.	<p>Physical Science: Structure of Matter: The student will understand</p>

STANDARD		the nature of matter including its forms, properties and interactions.
PERFORMANCE INDICATOR	II.A.7.	<p>The student will compare and contrast the states of matter in terms of interactions between particles.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>Virtual Laboratory: Classifying Living Organisms</li> </ul>
CONTENT STANDARD	MN.II.B.	Physical Science: Structure of Matter: Chemical Reactions: The student will describe chemical reactions and the factors that influence them.
PERFORMANCE INDICATOR	II.B.2.	<p>The student will explain the influence of temperature, surface area, agitation and catalysts on the rate of a reaction.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>Virtual Laboratory: Classifying Living Organisms</li> </ul>
CONTENT STANDARD	MN.III.A.	Earth and Space Science: Earth Structure and Processes: The student will understand that the interactions of the atmosphere, biosphere, lithosphere, hydrosphere and space have resulted in ongoing change of the Earth system over geologic time.
PERFORMANCE INDICATOR	III.A.5.	<p>The student will describe how glaciers, gravity, wind, temperature changes, waves and rivers cause weathering and erosion.</p> <ul style="list-style-type: none"> <li>Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> </ul>
CONTENT STANDARD	MN.IV.A.	Life Sciences: Cells: The student will comprehend that all living things are composed of cells, and that the life processes in a cell are based on molecular interactions.
PERFORMANCE INDICATOR	IV.A.5.	<p>The student will differentiate between the processes of photosynthesis and respiration in terms of energy flow, reactants and products.</p> <ul style="list-style-type: none"> <li>Teacher Resource CD: A Closer Look at Plants</li> </ul>
CONTENT STANDARD	MN.IV.B.	Life Sciences: Diversity of Organisms: The student will classify, compare and contrast the diversity of organisms on Earth and their modes of accommodating the requirements for life.
PERFORMANCE INDICATOR	IV.B.1.	<p>The student will relate the structure, complexity and organization of organ systems to the methods of obtaining, transforming, releasing and eliminating the matter and energy used to sustain the organism.</p> <ul style="list-style-type: none"> <li>Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>Teacher Resource CD: A Closer Look at Animals</li> <li>Teacher Resource CD: A Closer Look at Microbes</li> </ul>

		<ul style="list-style-type: none"> <li>• Teacher Resource CD: Classifying Life</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
PERFORMANCE INDICATOR	IV.B.2.	<p>The student will recognize that organisms have both innate and learned behavioral responses to internal and external stimuli, including the tropic responses in plants.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> </ul>
PERFORMANCE INDICATOR	IV.B.3.	<p>The student will use scientific evidence, including the fossil record, homologous structures, embryological development or biochemical similarities, to classify organisms in order to show probable evolutionary relationships and common ancestry.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Microbes</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> <li>• Teacher Resource CD: Classifying Life</li> </ul>

		<ul style="list-style-type: none"> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
<b>CONTENT STANDARD</b>	<b>MN.IV.C.</b>	<b>Life Sciences: Interdependence of Life: The student will describe how the environment and interactions between organisms can affect the number of species and the diversity of species in an ecosystem.</b>
<b>PERFORMANCE INDICATOR</b>	<b>IV.C.1.</b>	<p>The student will describe the factors related to matter and energy in an ecosystem that both influence fluctuations in population size and determine the carrying capacity of a population.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> </ul>
<b>PERFORMANCE INDICATOR</b>	<b>IV.C.2.</b>	<p>The student will explain how adaptations of species and co-evolution with other species are related to success in an ecosystem.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> </ul>

		<ul style="list-style-type: none"> <li>• Teacher Resource CD: A Closer Look at Plants</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
PERFORMANCE INDICATOR	IV.C.3.	<p>The student will identify examples of mutualism, commensalism, and parasitism in a stable ecosystem.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Microbes</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> </ul>
PERFORMANCE INDICATOR	IV.C.4.	<p>The student will predict and analyze how a change in an ecosystem, resulting from natural causes, changes in climate, human activity or introduction of invasive species, can affect both the number of organisms in a population and the biodiversity of species in the ecosystem.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
CONTENT STANDARD	MN.IV.D.	Life Sciences: Heredity: The student will explain how inherited characteristics are encoded by genes.
PERFORMANCE INDICATOR	IV.D.5.	<p>The student will describe how genetic information is transmitted from parents to offspring through the processes of meiosis and fertilization as they relate to chromosome recombination and sexual reproduction.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Teacher Resource CD: A Closer Look at Microbes</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> </ul>
CONTENT STANDARD	MN.IV.E.	Life Sciences: Biological Populations Change Over Time: The student will understand how biological evolution provides a scientific explanation for the fossil record of ancient life forms, as well as for

		the striking molecular similarities observed among the diverse species of living organisms.
PERFORMANCE INDICATOR	IV.E.2.	<p>The student will use the principles of natural selection to explain the differential survival of groups of organisms as a consequence of: The potential for a species to increase its numbers; The genetic variability of offspring due to mutation and recombination of genes; A finite supply of the resources required for life; and, the ensuing selection based on environmental factors of those offspring better able to survive and produce reproductively successful offspring.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 1: Classifying Life Forms</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 1: Observing the Behavior of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 2: Environmental Preference of Pill Bugs</li> <li>• Kingdoms of Life: Unit 2 Lab 4 Activity 3: Experimental Design</li> <li>• Teacher Resource CD: A Closer Look at Animals</li> <li>• Teacher Resource CD: A Closer Look at Plants</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> <li>• Virtual Laboratory: Classifying Living Organisms</li> </ul>
CONTENT STANDARD	MN.IV.F.	Life Sciences: Flow of Matter and Energy: The student will describe and explain the cycling of matter and flow of energy through an ecosystem's living and non-living components.
PERFORMANCE INDICATOR	IV.F.1.	<p>The student will explain the relationship between abiotic and biotic components of an ecosystem in terms of the cycling of water, carbon, oxygen and nitrogen.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 1: Scavenging for Bacteria and Fungi</li> <li>• Kingdoms of Life: Unit 2 Lab 2 Activity 2: Scavenging for Pond Microlife</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 1: Site Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 2: Forest (Wooded Area) Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 3: Grassland Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 4: Stream/River Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 5: Microlife Survey</li> <li>• Kingdoms of Life: Unit 3 Lab 5 Activity 6: Soil Survey</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> </ul>
PERFORMANCE INDICATOR	IV.F.2.	The student will know that all matter tends to become more disorganized over time, and that living systems require a continuous input of energy in order to maintain their chemical and physical organizations and prevent death.

		<ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Teacher Resource CD: A Closer Look at Microbes</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> </ul>
PERFORMANCE INDICATOR	IV.F.3.	<p>The student will explain that sunlight is transformed into chemical energy by photosynthetic organisms.</p> <ul style="list-style-type: none"> <li>• Teacher Resource CD: A Closer Look at Plants</li> </ul>
PERFORMANCE INDICATOR	IV.F.5.	<p>The student will understand that matter and energy flow through different levels of organization of living systems, from cells to communities, as well as between living systems and the physical environment as chemical elements are recombined in different ways. Each recombination results in both storage and dissipation of energy.</p> <ul style="list-style-type: none"> <li>• Kingdoms of Life: Unit 1 Lab 1 Activity 2: Who Eats Whom? - Creating Food Webs</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 1: Plant Life Cycle</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 2: Flowers and Pollination</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 3: Redirecting Energy to Reproduction</li> <li>• Kingdoms of Life: Unit 2 Lab 3 Activity 4: Seed Harvesting and Measurement</li> <li>• Teacher Resource CD: Field Biology - Collecting, Identifying, and Observing</li> </ul>