

Science - Grade 7 - 40 Weeks

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NYS Performance Indicators	Objectives	Text Resources	Resources (Suggested Activities)	Cross-Curriculum Connections	Assessment Items
	<p>Essential Question/Focus for: 1.1h</p> <p>1. How do scientists classify and arrange organisms?</p> <p>2. What is a dichotomous key and how is it used for identifying unknown organisms?</p>		<p>Classification worksheet</p>		
	<p>1.1h Living things are classified by shared characteristics on the cellular and organism level. In classifying organisms, biologists consider details of internal and external structures. Biological</p>	<p>Life's Structure & Function pp. 24-28</p>	<p>Interpreting taxonomy</p>		<p>9, 12, 43, 53, 54, 55, 56, 57</p>

<p>Students compare and MST4.I. contrast the LE1A parts of plants, animals, and one- celled organisms.</p>	<p>classification systems are arranged from general (kingdom) to specific (species).</p>				
	<p>LE Skill 6</p>	<p>Life's Structure & Function</p>	<p>Dichotomus Key</p>		
	<p>Classify living things according to a student-generated scheme and an established scheme.</p>	<p>p. 28</p>			
	<p>Essential Questions/Focus for: 6.1a-6.1b and 5.1d-5.1e</p> <p>1. Describe the flow of energy in an ecosystem using a food chain, food web and energy pyramid.</p> <p>2. What are the various roles and relationships that exist in an ecosystem?</p>		<p>Food Web Worksheet</p>		

<p>MST4.I. LE6A</p> <p>Students describe the flow of energy and matter through food chains and food webs.</p>	<p>6.1a Energy flows through ecosystems in one direction, usually from the Sun, through producers to consumers and then to decomposers. This process may be visualized with food chains or energy pyramids.</p>	<p>Ecology pp. 50-53</p>	<p>Energy pyramid tutorial</p>		<p>23, 29, 30, 39</p>
<p>MST4.I. LE6A</p> <p>Students describe the flow of energy and matter through food chains and food webs.</p>	<p>6.1b Food webs identify feeding relationships among producers, consumers, and decomposers in an ecosystem.</p>	<p>Ecology pp. 50-53</p>	<p>Interactive food web</p>		<p>24, 28, 58, 59, 60</p>
<p>MST4.I. LE5A</p> <p>Students compare the way a variety of living specimens carry out basic life functions and maintain dynamic equilibrium.</p>	<p>5.1d The methods for obtaining nutrients vary among organisms. Producers, such as green plants, use light energy to make their food. Consumers, such as animals, take in energy-rich foods.</p>	<p>Ecology pp. 20-21</p>	<p>Food Chain Brain Pop through National Geographic</p>		<p>63</p>

<p>Students compare the way a variety of living specimens carry out basic life functions and maintain dynamic equilibrium.</p> <p>MST4.I.</p> <p>LE5A</p>	<p>5.1e Herbivores obtain energy from plants. Carnivores obtain energy from animals.</p> <p>Omnivores obtain energy from both plants and animals.</p> <p>Decomposers, such as bacteria and fungi, obtain energy by consuming wastes and/or dead organisms.</p>	<p>Ecology</p> <p>pp. 20-21</p>	<p>Food Chain Tutorial</p>		<p>40, 42, 71</p>
	<p>LE Skill 7</p> <p>Interpret and/or illustrate the energy flow in a food chain, energy pyramid, or food web.</p>	<p>Ecology</p> <p>pp. 51-53</p>	<p>Interactive food chain</p>		
	<p>Essential Questions/Focus for: 6.1c</p> <p>1. Analyze the cycling of matter: water, carbon and nitrogen cycle.</p>		<p>Water Cycle Video</p> <p>Make a Model of The Water Cycle</p>		
<p>Students describe the flow of energy and matter through food chains and food</p> <p>MST4.I.</p> <p>LE6A</p>	<p>6.1c Matter is transferred from one organism to another and between organisms and their physical environment. Water, nitrogen, carbon dioxide, and oxygen are examples of</p>	<p>Ecology</p> <p>pp. 44-49</p>	<p>Plant and Animal Interaction</p>		<p>38</p>

	webs.	substances cycled between the living and nonliving environment.			
		<p>Essential Questions/Focus for: 7.1a-7.1b</p> <p>1. Distinguish between population, community and ecosystem.</p> <p>2. Describe factors that could limit population growth in an ecosystem.</p>		Virtual Population Lab	
	<p>Students describe how living things, including humans, depend upon the living and nonliving environment for their survival.</p> <p>MST4.I.</p> <p>LE7A</p>	<p>7.1a A population consists of all individuals of a species that are found together at a given place and time. Populations living in one place form a community. The community and the physical factors with which it interacts compose an ecosystem.</p>	<p>Ecology</p> <p>pp. 8-11</p>	Pond Water Activity	<p>22, 47, 48</p>

<p>Students describe how living things, including humans, depend upon the living and nonliving environment for their survival.</p> <p>MST4.I.</p> <p>LE7A</p>	<p>7.1b Given adequate resources and no disease or predators, populations (including humans) increase. Lack of resources, habitat destruction, and other factors such as predation and climate limit the growth of certain populations in the ecosystem.</p>	<p>Ecology</p> <p>pp. 12-19, 24</p>	<p>Deer- Predation or Starvation</p>		<p>25, 46, 49</p>
	<p>Essential Questions/Focus for: 7.1c-7.1d and 5.1b</p> <p>1. Describe competitive, harmful, neutral and beneficial interactions among organisms in an ecosystem.</p> <p>2. Explain the interdependence between the living and nonliving parts of the environment.</p>				

<p>Students describe how living things, including humans, depend upon the living and nonliving environment for their survival.</p> <p>MST4.I.</p> <p>LE7A</p>	<p>7.1c In all environments, organisms interact with one another in many ways. Relationships among organisms may be competitive, harmful, or beneficial. Some species have adapted to be dependent upon each other with the result that neither could survive without the other.</p>	<p>Ecology</p> <p>pp. 22-23</p>	<p>Good Buddies</p> <p>Activity</p>		
<p>Students describe how living things, including humans, depend upon the living and nonliving environment for their survival.</p> <p>MST4.I.</p> <p>LE7A</p>	<p>7.1d Some microorganisms are essential to the survival of other living things.</p>	<p>Ecology</p> <p>pp. 22-23</p>			
<p>Students compare the way a variety of living specimens carry out basic life functions and</p> <p>MST4.I.</p> <p>LE5A</p>	<p>5.1b An organism's overall body plan and its environment determine the way that the organism carries out the life processes.</p>	<p>Ecology</p> <p>p. 23</p>			<p>19, 36</p>

	maintain dynamic equilibrium.				
	Essential Question/Focus for: 7.1e 1. Describe the effects of pollutants and overpopulation on the health of the environment.				
MST4.I. LE7A	Students describe how living things, including humans, depend upon the living and nonliving environment for their survival. 7.1e The environment may contain dangerous levels of substances (pollutants) that are harmful to organisms. Therefore, the good health of environments and individuals requires the monitoring of soil, air, and water, and taking steps to keep them safe.	Ecology pp. 102-110 Ecology pg. 14 Green House Effect	Interactive Smog City	<i>Social Studies</i> Unit project on industrial revolution	26, 50, 51, 52
	Essential Question/Focus for: 7.2a-7.2b 1. Explain the process of ecological succession due to nature and human activity.				

<p>Students describe the effects of environmental changes on humans and other populations.</p> <p>MST4.I.</p> <p>LE7B</p>	<p>7.2a In ecosystems, balance is the result of interactions between community members and their environment.</p>	<p>Ecology</p> <p>pp. 36-42</p>			
<p>Students describe the effects of environmental changes on humans and other populations.</p> <p>MST4.I.</p> <p>LE7B</p>	<p>7.2b The environment may be altered through the activities of organisms. Alterations are sometimes abrupt. Some species may replace others over time, resulting in long-term gradual changes (ecological succession).</p>	<p>Ecology</p> <p>pp. 64-67</p>	<p>Succession worksheet</p>		<p>37</p>
	<p>Essential Question/Focus for: 7.2c-7.2d</p> <p>1. Explain how human activities and the Industrial Revolution have contributed to environmental degradation.</p>		<p>Ecology Power Point Project</p>		

<p>Students describe the effects of environmental changes on humans and other populations.</p> <p>MST4.I. LE7B</p>	<p>7.2c Overpopulation by any species impacts the environment due to the increased use of resources. Human activities can bring about environmental degradation through resource acquisition, urban growth, land-use decisions, waste disposal, etc.</p>	<p>Ecology pp. 102-110</p>			70
<p>Students describe the effects of environmental changes on humans and other populations.</p> <p>MST4.I. LE7B</p>	<p>7.2d Since the Industrial Revolution, human activities have resulted in major pollution of air, water, and soil. Pollution has cumulative ecological effects such as acid rain, global warming, or ozone depletion. The survival of living things on our planet depends on the conservation and protection of Earth's resources.</p>	<p>Ecology pp. 94-100, 112-136</p>			41

*Please
see
individual
matrix for
"Science
-
Grade 7
-
Standard
1,
Analysis,
Inquiry
and
Design -
Scientific
Inquiry
Skills
Matrix"*

Classification	Ecology/Energy Flow (cont.)	Environmental Science	Objectives
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Class
 Classification
 Classification Systems
 Dichotomous Key
 Family
 Genus
 Kingdom
 Order
 Phylum
 Species

Ecology/Energy Flow

Abiotic factors
 Adaptation
 Bacteria
 Balance
 Biotic factors
 Carbon cycle
 Carnivore
 Commensalism
 Community
 Competition
 Condensation
 Decomposer
 Ecosystem
 Energy Pyramid
 Evaporation
 Food Chain
 Food Web

Fungi
 Habitat
 Herbivore
 Host
 Limiting factor
 Microorganism
 Mutualism
 Nitrogen cycle
 Omnivore
 Oxygen cycle
 Parasite
 Parasitism
 Physical environment
 Population
 Precipitation
 Predation
 Predator
 Prey
 Primary consumer
 Producer
 Resource acquisition
 Resources
 Scavenger
 Secondary consumer
 Symbiosis
 Symbiotic relationships
 Water cycle

Acid Raid
 Conservation
 Degradation
 Ecological succession
 Ecosystem
 Fossil Fuel
 Global Warming
 Industrial revolution
 Land-use decisions
 National Env. Policy Act
 Natural resources
 Overpopulation
 Ozone Depletion
 Pioneer Species
 Pollutants
 Urban Growth
 Waste disposal

Classification

1. Identify the names of an unknown organisms using a dichotomous key.

Ecology

2. Distinguish between population, community and ecosystem.
 3. Describe factors that could limit population growth in an ecosystem.
 4. Describe competitive, harmful and beneficial interactions among organisms in an ecosystem.
 5. Explain the dependence of living or the living and nonliving environment for survival.

Energy Flow

6. Describe the feeding relationships in a food chain and food web.

Environmental Science

7. Describe the effects of pollutants and overpopulation on the health of the environment.
 8. Explain the process of ecological succession due to nature and human activity.
 9. Explain how the Industrial Revolution has contributed to environmental degradation.