

<p>Middle School Life Science (7th) Matter and Energy in Organisms and Ecosystems</p> <p>NGSS Matter & Energy in Organisms and Ecosystems</p> <p>Standard: http://www.nextgenscience.org/overview-topics</p>	<p>Links</p>
<p>MS-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.</p>	<p>Life Sci 1-6</p>
<p>MS-LS1-7. Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.</p>	<p>Life Sci 1-7</p>
<p>MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.</p>	<p>Life Sci 2-1</p>
<p>MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.</p>	<p>Life Sci 2-3</p>
<p>MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.</p>	<p>Life Sci 2-4</p>

<p>21st Century Learning Expectations:</p> <ul style="list-style-type: none">• Hinsdale students will communicate through various means• Hinsdale students will be able to solve problems	<p>21st Century Learning Expectations</p>
<p>Enduring Understandings (cross cutting concepts):</p> <ul style="list-style-type: none">• Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-LS2-1)• Matter is conserved because atoms are conserved in physical and chemical processes. (MS-LS1-7)• Within a natural system, the transfer of energy drives the motion and/or cycling of matter. (MS-LS1-6)• The transfer of energy can be tracked as energy flows through a natural system. (MS-LS2-3)• Stability and Change• Small changes in one part of a system might cause large changes in another part. (MS-LS2-4)• Scientific Knowledge Assumes an Order and Consistency in Natural Systems• Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation. (MS-LS2-3)	

Learning Competencies (engineering practices)	Essential Questions (core ideas)
<p><i>Students will be able to: (NGSS Science and Engineering practices)</i></p> <ul style="list-style-type: none"> • Develop a model to describe phenomena. (MS-LS2-3) • Develop a model to describe unobservable mechanisms. (MS-LS1-7) • Analyze and interpret data to provide evidence for phenomena. (MS-LS2-1) • Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students’ own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. (MS-LS1-6) • Construct an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. (MS-LS2-4) • Science knowledge is based upon logical connections between evidence and explanations. (MS-LS1-6) • Science disciplines share common rules of obtaining and evaluating empirical evidence. (MS-LS2-4) 	<ul style="list-style-type: none"> • Why do the processing of food and energy differ in living things? • Why is it important that there are living <i>and</i> non-living parts of an ecosystem? How do they depend on each other?
<p>Performance Task Sample:</p> <p>NSTA Disruption in Ecosystems</p> <p>NSTA Won't you be my urchin?</p>	