

ENGINEERING, TECHNOLOGY, AND APPLICATIONS OF SCIENCE ALTERNATE CONTENT EXPECTATIONS – MIDDLE SCHOOL (GRADES 6-8)

Topic Bundle: Engineering Design

Target Alternate Content Expectation	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
<p>Michigan K-12 Science Content Standards: MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.</p>			
<p>EE.MS-ETS1-1: Determine a simple solution to a design problem that reflects a need or want.</p>	<p>EE.MS-ETS1-H.1: Determine a simple solution to a design problem that reflects a need or want.</p>	<p>EE.MS-ETS1-M.1: Identify appropriate materials for a given solution to a design problem.</p>	<p>EE.MS-ETS1-L.1: Participate in activities that demonstrate finding a solution to a simple design problem in order to identify one action/material.</p>

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<p>Michigan K-12 Science Content Standards: MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.</p>			
<p>EE.MS-ETS1-2: Given a simple problem, generate and/or compare possible solutions to the problem based on how well each solution is likely to meet the specified desired results.</p>	<p>EE.MS-ETS1-H.2: Given a simple problem, generate and/or compare possible solutions to the problem based on how well each solution is likely to meet specified desired results.</p>	<p>EE.MS-ETS1-M.2: Given a simple problem, compare multiple solutions to identify the solution that meets specified desired results.</p>	<p>EE.MS-ETS1-L.2: Participate in testing and comparing two solutions to a simple problem to identify the solution that best meets specified desired results.</p>

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<p>Michigan K-12 Science Content Standards: MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.</p>			
<p>EE.MS-ETS1-3: Use data to inform changes needed to a given design to improve the design's ability to meet the desired results.</p>	<p>EE.MS-ETS1-H.3: Use data to inform changes needed to a given design to improve the design's ability to meet the desired results.</p>	<p>EE.MS-ETS1-M.3: Determine whether or not an engineering design product meets the desired results.</p>	<p>EE.MS-ETS1-L.3: Identify whether a specific product is working (broken) or not.</p>

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	High Range	Medium Range	Low Range
<p>Michigan K-12 Science Content Standard: MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.</p>			
<p>EE.MS-ETS1-4: Compare data of two or more test design models to determine which model would best lead to improved design.</p>	<p>EE.MS-ETS1-H.4: Compare data of two or more test design models to determine which model would best lead to improved design.</p>	<p>EE.MS-ETS1-M.4: Given two or more modification options, participate in testing to identify the option that shows the best result for a specified criterion.</p>	<p>EE.MS-ETS1-L.4: Identify the function of a given tool or object.</p>