

DRAFT SCIENCE ALTERNATE EXPECTATIONS: GRADE 1

Topic Bundle: Waves: Light and Sound

Target Alternate Expectation	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
Michigan K-12 Science Content Standard: 1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.			
EE.1-PS4-1: Given clearly different options, choose tools, materials and/or steps of a plan to conduct investigations to show that vibrating materials make sound and/or sound makes materials vibrate.	EE.1-PS4-H.1: Given clearly different options, choose tools, materials and/or steps of a plan to conduct investigations to show that vibrating materials make sound and/or sound makes materials vibrate.	EE.1-PS4-M.1: Given the steps, conduct investigations to show that vibrating materials make sound and/or sound makes materials vibrate.	EE.1-PS4-L.1: Given a demonstration of sound that produces physically discernible vibrations, recognize that sound source causing materials to vibrate.

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Target Alternate Expectation	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
<p>Michigan K-12 Science Content Standard: 1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated.</p>			
<p>EE.1-PS4-2: Use observations as evidence that objects in darkness can be seen only when illuminated.</p>	<p>EE.1-PS4-H.2: Use observations as evidence that objects in darkness can be seen only when illuminated.</p>	<p>EE.1-PS4-M.2: Given options, identify that objects in the light can be seen and that objects in the dark exist but cannot be seen.</p>	<p>EE.1-PS4-L.2: Recognize objects in the light and in the dark.</p>

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Target Alternate Expectation	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
<p>Michigan K-12 Science Content Standard: 1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.</p>			
<p>EE.1-PS4-3: Given clearly different options, choose tools, materials, and/or steps of a plan to conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.</p>	<p>EE.1-PS4-H.3: Given clearly different options, choose tools, materials, and/or steps of a plan to conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.</p>	<p>EE.1-PS4-M.3: Given clearly different materials placed in the path of a beam of light, choose the materials that will allow light to pass through and those that will block it.</p>	<p>EE.1-PS4-L.3: Given clearly different materials placed in the path of a beam of light, recognize that materials can block light.</p>

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Target Alternate Expectation	Michigan Range of Complexity		
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<p>Michigan K-12 Science Content Standard: 1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.*</p>			
<p>EE.1-PS4-4: Given options, choose the tool that uses sound or light to solve a problem of communicating.</p>	<p>EE.1-PS4-H.4: Given options, choose the tool that uses sound or light to solve a problem of communicating.</p>	<p>EE.1-PS4-M.4: Given vastly different options, choose the tool that uses light and/or sound to communicate.</p>	<p>EE.1-PS4-L.4: Demonstrate that using a device that uses sound or light can communicate a need.</p>

Topic Bundle: Structure, Function, and Information Processing

Target Alternate Expectation	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
<p>Michigan K-12 Science Content Standard: 1-LS1-1: Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.</p>			
<p>EE.1-LS1-1: Given a solution to a human problem, identify materials that mimic how plants and/or animals use their external parts to help them survive, grow, and meet their needs.</p>	<p>EE.1-LS1-H.1: Given a solution to a human problem, identify materials that mimic how plants and/or animals use their external parts to help them survive, grow, and meet their needs.</p>	<p>EE.1-LS1-M.1: Identify how humans and/or animals use their external parts to meet their needs.</p>	<p>EE.1-LS1-L.1: Given vastly different options and guidance and support, recognize that humans use their external parts to meet their needs.</p>

Topic Bundle: Structure, Function, and Information Processing

Target Alternate Expectation	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
<p>Michigan K-12 Science Content Standard: 1-LS1-2: Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.</p>			
<p>EE.1-LS1-2: Use texts and media to determine patterns in behavior of parents and offspring that help offspring survive.</p>	<p>EE.1-LS1-H.2: Use texts and media to determine patterns in behavior of parents and offspring that help offspring survive.</p>	<p>EE.1-LS1-M.2: Use familiar routines and observations to identify patterns in behavior of parents and offspring that help to meet the needs of the young.</p>	<p>EE.1-LS1-L.2: Use familiar routines and observations to communicate a pattern of behavior of self and adults to meet a need.</p>

Topic Bundle: Structure, Function, and Information Processing

Target Alternate Expectation	Michigan Range of Complexity		
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<p>Michigan K-12 Science Content Standard: 1-LS3-1: Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.</p>			
<p>EE.1-LS3-1: Use observations to gain evidence in order to communicate that young plants and animals are like, but not exactly like, their parents.</p>	<p>EE.1-LS3-H.1: Use observations to gain evidence in order to communicate that young plants and animals are like, but not exactly like, their parents.</p>	<p>EE.1-LS3-M.1: Use observations to identify that young plants and/or animals are like, but not exactly like, their parents.</p>	<p>EE.1-LS3-L.1: Given a familiar animal (including humans) and two vastly different options, match the offspring to the adult.</p>

Topic Bundle: Space Systems: Patterns and Cycles

Target Alternate Expectation	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
Michigan K-12 Science Content Standard: 1-ESS1-1. Use observations of the sun, moon, and stars to describe patterns that can be predicted.			
EE.1-ESS1-1: Use observations of the sun, moon and stars to describe patterns that can be predicted.	EE.1-ESS1-H.1: Use observations of the sun, moon and stars to describe patterns that can be predicted.	EE.1-ESS1-M.1: Use observations of the sun, moon and stars to identify patterns.	EE.1-ESS1-L.1: Given facilitated observations, recognize that the sun is visible during the day and the moon at night.

Topic Bundle: Space Systems: Patterns and Cycles

Target Alternate Expectation	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
<p>Michigan K-12 Science Content Standard: 1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year.</p>			
<p>EE.1-ESS1-2: Make consistent observations to compare the relative amount of daylight at different times of the school year.</p>	<p>EE.1-ESS1-H.2: Make consistent observations to compare the relative amount of daylight at different times of the school year.</p>	<p>EE.1-ESS1-M.2: Given human activities that typically occur during a particular season, identify the season (limited to summer and winter).</p>	<p>EE.1-ESS1-L.2: Identify the current season of the year.</p>

Topic Bundle: Engineering Design

Target Alternate Expectation	Michigan Range of Complexity		
	High Range	Medium Range	Low Range
Michigan K-12 Science Content Standard: K-2-ETS1-1 . Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.			
EE.K-2-ETS1-1a: Demonstrate and use emerging awareness about a situation people want to change or a problem that needs to be solved.	EE.K-2-ETS1-H.1a: Demonstrate and use emerging awareness about a situation people want to change or a problem that needs to be solved.	EE.K-2-ETS1-M.1a: Demonstrate and use emerging awareness about a situation people want to change or a problem that needs to be solved.	EE.K-2-ETS1-L.1a: Demonstrate and use emerging awareness about a situation people want to change or a problem that needs to be solved.
EE.K-2-ETS1-1b: Given a menu of options, select appropriate questions about a situation people want to change or a problem that needs to be solved.	EE.K-2-ETS1-H.1b: Given a menu of options, select appropriate questions about a situation people want to change or a problem that needs to be solved.	EE.K-2-ETS1-M.1b: With guidance and support, ask an appropriate question about a situation people want to change or a problem that needs to be solved.	EE.K-2-ETS1-L.1b: Given a scenario of a problem solved by an adult, identify the solution to the problem when presented with a choice of two solutions.
EE.K-2-ETS1-1c: Given clearly different options, choose a tool or object that can be used to solve a problem.	EE.K-2-ETS1-H.1c: Given clearly different options, choose a tool or object that can be used to solve a problem.	EE.K-2-ETS1-M.1c: Given clearly different options, choose a tool or object that can be used to solve a problem.	EE.K-2-ETS1-L.1c: Given two vastly different options, identify a tool or object that can be used to solve a problem.

Topic Bundle: Engineering Design

Target Alternate Expectation	Michigan Range of Complexity		
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<p>Michigan K-12 Science Content Standard: K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</p>			
<p>K-2-ETS1-2.a: When presented with a problem and a collection of tools, materials, or objects that are significantly different shapes, choose the tool, material, or object that will help solve the problem.</p>	<p>K-2-ETS1-H.2.a: When presented with a problem and a collection of tools, materials, or objects that are significantly different shapes, choose the tool, material, or object that will help solve the problem.</p>	<p>K-2-ETS1-M.2.a: When presented with a problem and a collection of tools, materials, or objects that are significantly different shapes, choose the tool, material, or object that will help solve the problem.</p>	<p>K-2-ETS1-L.2: When presented with a problem and tools, choose the tool that will help solve the problem.</p>
<p>K-2-ETS1-2.b: Demonstrate how the shape of a tool, material, or object helps solve the problem.</p>	<p>K-2-ETS1-H.2.b: Demonstrate how the shape of a tool, material, or object helps solve the problem.</p>	<p>K-2-ETS1-M.2.b: Identify that the shape of a tool, material, or object helps solve the problem.</p>	

Topic Bundle: Engineering Design

Target Alternate Expectation	Michigan Range of Complexity		
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<p>Michigan K-12 Science Content Standard: K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>			
<p>EE.K-2-ETS1-3: Use observational data from tests of two objects designed to solve the same problem to compare how two tools, materials, or objects do or do not solve the same problem.</p>	<p>EE.K-2-ETS1-H.3: Use observational data from tests of two objects designed to solve the same problem to compare how two tools, materials, or objects do or do not solve the same problem.</p>	<p>EE.K-2-ETS1-M.3: Use observational data from tests of two vastly different objects designed to solve the same problem to compare how two tools, materials, or objects do or do not solve the same problem.</p>	<p>EE.K-2-ETS1-L.3: Given a familiar problem and two vastly different objects, identify which one solves the problem.</p>