



WAVES AND THEIR APPLICATIONS

Performance Expectation	Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.
Clarification Statement	Examples of vibrating materials that make sound could include tuning forks or plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound or holding an object near a vibrating tuning fork.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<ol style="list-style-type: none"> 1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations: Planning and carrying out investigations to answer questions (science) or test solutions (engineering) to problems in K-2 build on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. <ul style="list-style-type: none"> • Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information 	<p>WAVE PROPERTIES Sound can make matter vibrate, and vibrating matter can make sound. (K-2.PS4A.a)</p>	<p>CAUSE AND EFFECT Simple tests can be designed to gather evidence to support or refute student ideas about causes.</p>

Grade 1

DBR-1-PS4-2

WAVES AND THEIR APPLICATIONS

Performance Expectation	Make observations to construct an evidence-based account that objects can be seen only when illuminated.
Clarification Statement	Examples of observations could include those made in a completely dark room, a pinhole box, or a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light. This can be explored with light tables, 3-way mirrors, overhead projectors or flashlights.

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<p>Performance Expectation</p>	<p>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>Clarification Statement</p>	<p>Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), or reflective (such as a mirror).</p>

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WAVES AND THEIR APPLICATIONS

<p>Performance Expectation</p>	<p>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>Clarification Statement</p>	<p>Examples of devices could include a light source to send signals, paper cup and string “telephones,” or a pattern of drumbeats.</p>

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FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES

Performance Expectation	Use tools and 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.
Clarification Statement	Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells or animal scales; stabilizing structures by mimicking animal tails or roots on plants; keeping out intruders by mimicking thorns on branches or animal quills; and detecting intruders by mimicking eyes or ears.

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FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES

<p>Performance Expectation</p>	<p>Read grade-appropriate texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.</p>
<p>Clarification Statement</p>	<p>Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).</p>



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HEREDITY: INHERITANCE AND VARIATION OF TRAITS

<p>Performance Expectation</p>	<p>Make observations to construct an evidence-based account that young plants and animals are similar, but not exactly like, their parents.</p>
<p>Clarification Statement</p>	<p>Examples of observations could include: leaves from the same kind of plant are similar in shape but can differ in size, or a particular breed of dog looks like its parents but is not exactly the same. Examples of patterns could include features that plants or animals share.</p>

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EARTH'S PLACE IN THE UNIVERSE

<p>Performance Expectation</p>	<p>Use observations of the sun, moon, and stars to describe patterns that can be predicted.</p>
<p>Clarification Statement</p>	<p>Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set; and stars other than our sun are visible at night but not during the day.</p>

<p>Science & Engineering Practices</p>	<p>Disciplinary Core Ideas</p>	<p>Crosscutting Concepts</p>
<ol style="list-style-type: none"> 1. Asking questions and defining problems 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data: Analyzing and interpreting data in K-2 builds on prior experiences and progresses to collecting, recording, and sharing observations. <ul style="list-style-type: none"> • Use observations to describe patterns in the natural world in order to answer scientific questions. 5. Using mathematics and computational thinking 6. Constructing explanations and designing solutions 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information 	<p>THE UNIVERSE AND ITS STARS Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (K-2.ESS1A.a)</p>	<p>PATTERNS Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.</p>

EARTH'S PLACE IN THE UNIVERSE

<p>Performance Expectation</p>	<p>Make observations at different times of year to relate the amount of daylight to the time of year.</p>
<p>Clarification Statement</p>	<p>Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring, fall, or summer.</p>

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