



Grade 1

3.2.1.A Physical Science: Waves and Their Applications in Technologies for Information Transfer

Students who demonstrate understanding can plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.

Clarifying Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.

Assessment Boundary: N/A

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Crosscutting Concepts (CCC)
<p>Planning and Carrying Out Investigations</p> <p>Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> Plan and conduct investigations collaboratively to produce evidence to answer a question. 	<p>Wave Properties</p> <ul style="list-style-type: none"> Sound can make matter vibrate, and vibrating matter can make sound. 	<p>Cause and Effect</p> <ul style="list-style-type: none"> Simple tests can be designed to gather evidence to support or refute student ideas about causes.
<p>Connections to Nature of Science</p> <p>Scientific Investigations Use a Variety of Methods</p> <ul style="list-style-type: none"> Science investigations begin with a question. Scientists use different ways to study the world. 		

Pennsylvania Context: N/A

PA Career Ready Skills: Distinguish among a set of short-term, mid-range, and long-term goals.

Connections to Other Standards Content and Practices

Standard Source	Possible Connections to Other Standard(s) or Practice(s)
Agriculture (AFNR)	CS.01.02.01.a: Research technologies used in AFNR systems.



Standard Source	Possible Connections to Other Standard(s) or Practice(s)
Science, Environmental Literacy and Sustainability (NAAEE)	K-4 Strand 1.B. Designing investigations: Learners design simple environmental investigations.
PA Core Standards: ELA	CC.1.4.1.A: Write informative/explanatory texts to examine a topic and convey ideas and information. CC.1.4.1.V: Participate in individual or shared research and writing projects. CC.1.4.1.W: With guidance and support, recall information from experiences or gather information from provided sources to answer a question. CC.1.5.1.A: Participate in collaborative conversations with peers and adults in small and larger groups.
PA Core Standards and Practices: Math	MP.5: Use appropriate tools strategically. CC.2.4.1.A.1: Order lengths and measure them both indirectly and by repeating length units.
PA Standards: Social Studies	6.5.1.E: Describe what tools (tangible assets) are necessary to complete a task.
Educational Technology (ISTE)	1.4. Innovative Designer: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.
Technology and Engineering (ITEEA)	STEL-2D: Develop a plan in order to complete a task.