



Grade 1

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

Students who demonstrate understanding can use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.

Clarifying Statement: Examples of devices could include a light source to send signals, paper cup and string “telephones,” and a pattern of drum beats.

Assessment Boundary: Assessment does not include technological details for how communication devices work.

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Crosscutting Concepts (CCC)
<p>Constructing Explanations and Designing Solutions</p> <p>Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> Use tools and materials provided to design a device that solves a specific problem. 	<p>PS4.C: Information Technologies and Instrumentation</p> <ul style="list-style-type: none"> People also use a variety of devices to communicate (send and receive information) over long distances. 	<p>Connections to Engineering, Technology, and Applications of Science</p> <p>Influence of Engineering, Technology, and Science, on Society and the Natural World</p> <ul style="list-style-type: none"> People depend on various technologies in their lives; human life would be very different without technology.

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.
Science, Environmental Literacy and Sustainability (NAAEE)	K-4 Strand 1.G. Drawing conclusions and developing explanations: Learners develop explanations that address their questions about the environment.
PA Core Standards: ELA	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.



Standard Source	Possible Connections to Other Standard(s) or Practice(s)
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-2B: Safely use tools to complete tasks. STEL-5B: Explore how technologies are developed to meet individual and societal needs and wants.