



Grade 4

3.2.4.A Physical Science: Energy

Students who demonstrate understanding can *use evidence to construct an explanation relating the speed of an object to the energy of that object.*

Clarifying Statement: N/A

Assessment Boundary: Assessment does not include quantitative measures of changes in the speed of an object or on any precise or quantitative definition of energy.

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Crosscutting Concepts (CCC)
Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. <ul style="list-style-type: none"> Use evidence (e.g., measurements, observations, patterns) to construct an explanation. 	Definitions of Energy <ul style="list-style-type: none"> The faster a given object is moving, the more energy it possesses. 	Energy and Matter <ul style="list-style-type: none"> Energy can be transferred in various ways and between objects.

Pennsylvania Context: N/A

PA Career Ready Skills: Select and utilize expressive communication strategies (e.g., tone, body language, facial expressions) with an understanding of its effect on others.

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 (NAEE)	K-4 Strand 1.G. Drawing conclusions and developing explanations: Learners develop explanations that address their questions about the environment.



Standard Source	Possible Connections to Other Standard(s) or Practice(s)
PA Core Standards: ELA	<p>CC.1.4.4.S: Draw evidence from literary or informational texts to support analysis, reflection, and research, applying grade level reading standards for literature and informational texts.</p> <p>CC.1.4.4.V: Conduct short research projects that build knowledge through investigation of different aspects of a topic.</p> <p>CC.1.4.4.W: Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.</p> <p>CC.1.5.4.A: Engage effectively in a range of collaborative discussions on grade-level topics and texts, building on others' ideas and expressing their own clearly.</p>
PA Core Standards and Practices: Math	<p>CC.2.2.4.A.1: Represent and solve problems involving the four operations.</p> <p>CC.2.4.4.A.2: Translate information from one type of data display to another.</p>
PA Standards: Social Studies	N/A
Educational Technology (ISTE)	1.3. Knowledge Constructor: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
Technology and Engineering (ITEEA)	STEL-3D: Explain how various relationships can exist between technology and engineering and other content areas.