Grade 2

3.2.2.D Physical Science: Matter and Its Interactions

Students who demonstrate understanding can *construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.*

Clarifying Statement: Examples of reversible changes could include materials such as water and butter at different temperatures. Examples of irreversible changes could include cooking an egg, freezing a plant leaf, and heating paper.

Assessment Boundary: N/A

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Crosscutting Concepts (CCC)
Engaging in Argument From Evidence Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s). • Construct an argument with evidence to support a claim. ***Connections to Nature of Science*** **Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena** • Science searches for cause and effect relationships to explain natural events.	**Chemical Reactions** • Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.	**Cause and Effect** • Events have causes that generate observable patterns.

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.06.01.01.a: Research and explain the foundational cycles in AFNR (e.g., water cycle, nutrient cycle, carbon cycle, etc.).
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.

Standard Source	Possible Connections to Other Standard(s) or Practice(s)
PA Core Standards: ELA	CC.1.4.2.V: Participate in individual or shared research and writing projects. CC.1.4.2.W: Recall information from experiences or gather information from provided sources to answer a question. CC.1.5.2.A: Participate in collaborative conversations with peers and adults in small and larger groups.
PA Core Standards and Practices: Math	MP.2: Reason abstractly and quantitatively. MP.3: Construct viable arguments and critique the reasoning of others. CC.2.4.2.A.4: Represent and interpret data using line plots, picture graphs, and bar graphs.
PA Standards: Social Studies	N/A
Educational Technology (ISTE)	1.6. Creative Communicator: Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
Technology and Engineering (ITEEA)	STEL-8A: Analyze how things work.