



**Grade 5**

**3.2.5.D Physical Science: Matter and Its Interactions**

**Students who demonstrate understanding can** *measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.*

**Clarifying Statement:** Examples of reactions or changes could include phase changes, dissolving, and mixing that form new substances.

**Assessment Boundary:** Assessment does not include distinguishing mass and weight.

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Crosscutting Concepts (CCC)
<p><b>Using Mathematics and Computational Thinking</b></p> <p>Mathematical and computational thinking in 3–5 builds on K–2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions.</p> <ul style="list-style-type: none"> <li>Measure and graph quantities such as weight to address scientific and engineering questions and problems.</li> </ul>	<p><b>PS1.A: Structure and Properties of Matter</b></p> <ul style="list-style-type: none"> <li>The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish.</li> </ul> <p><b>PS1.B: Chemical Reactions</b></p> <ul style="list-style-type: none"> <li>No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.)</li> </ul>	<p><b>Scale, Proportion, and Quantity</b></p> <ul style="list-style-type: none"> <li>Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.</li> </ul> <hr/> <p><b>Connections to Nature of Science</b></p> <p><b>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</b></p> <ul style="list-style-type: none"> <li>Science assumes consistent patterns in natural systems.</li> </ul>

**Pennsylvania Context:** N/A

**PA Career Ready Skills:** Identify one’s own strengths, needs, and preferences.

**Connections to Other Standards Content and Practices**

Standard Source	Possible Connections to Other Standard(s) or Practice(s)
Agriculture (AFNR)	CS.06.01.01.c: Teach others about the impact of foundational cycles within AFNR systems.
Science, Environmental Literacy and Sustainability (NAAEE)	5-8 Strand 1.C. Collecting information: Learners locate and collect quantitative and qualitative information about the environment and environmental topics, using a range of methods and sources. They explain why they used selected information collection methods.



Standard Source	Possible Connections to Other Standard(s) or Practice(s)
<b>PA Core Standards: ELA</b>	<p>CC.1.2.5.G: Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.</p> <p>CC.1.4.5.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.1.4.5.V: Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.</p> <p>CC.1.4.5.W: Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.</p> <p>CC.1.5.5.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>
<b>PA Core Standards and Practices: Math</b>	<p>MP.2: Reason abstractly and quantitatively.</p> <p>MP.4: Model with mathematics.</p> <p>CC.2.1.5.C.2: Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</p> <p>CC.2.4.5.A.1: Solve problems using conversions within a given measurement system.</p>
<b>PA Standards: Social Studies</b>	N/A
<b>Educational Technology (ISTE)</b>	1.1. Empowered Learner: Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.
<b>Technology and Engineering (ITEEA)</b>	STEL-2I: Describe the properties of different materials.