



Grades 6–8

3.3.6-8.F Earth and Space Science: Earth's Systems

Students who demonstrate understanding can *develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.*

Clarifying Statement: Emphasis is on the processes of melting, crystallization, weathering, deformation, and sedimentation, which act together to form minerals and rocks through the cycling of Earth's materials.

Assessment Boundary: Assessment does not include the identification and naming of minerals.

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Crosscutting Concepts (CCC)
<p>Developing and Using Models</p> <p>Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.</p> <ul style="list-style-type: none"> Develop and use a model to describe phenomena. 	<p>ESS2.A: Earth's Materials and Systems</p> <ul style="list-style-type: none"> All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. This energy is derived from the sun and Earth's hot interior. The energy that flows and matter that cycles produce chemical and physical changes in Earth's materials and living organisms. 	<p>Stability and Change</p> <ul style="list-style-type: none"> Explanations of stability and change in natural or designed systems can be constructed by examining the changes over time and processes at different scales, including the atomic scale.

Pennsylvania Context: Examples of Pennsylvania context include but are not limited to the formation of limestone and coal, such as bituminous, as compared to anthracite and limestone, as compared to marble in Pennsylvania.

PA Career Ready Skills: Analyze various perspectives on a situation.

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 (NAEE)	5-8 Strand 2.1.A. Earth's physical systems: Learners describe the physical processes that shape Earth, including weather, climate, plate tectonics, and the hydrologic cycle. They explain how matter cycles and energy flows among the abiotic and biotic components of the environment. They describe how humans affect and are affected by Earth's physical systems.
PA Core Standards: ELA	CC.1.5.8.E: Adapt speech to a variety of contexts and tasks.
PA Core Standards and Practices: Math	N/A
PA Standards: Social Studies	7.4.6.B: Describe and explain the effects of people on the physical systems within regions.



Standard Source	Possible Connections to Other Standard(s) or Practice(s)
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-4L: Analyze how the creation and use of technologies consumes renewable and nonrenewable resources and creates waste.