



Grades 6–8

3.3.6-8.E Earth and Space Science: History of Earth

Students who demonstrate understanding can *construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.*

Clarifying Statement: Emphasis is on how processes change Earth's surface at time and spatial scales that can be large (such as slow plate motions or the uplift of large mountain ranges) or small (such as rapid landslides or microscopic geochemical reactions), and how many geoscience processes (such as earthquakes, volcanoes, and meteor impacts) usually behave gradually but are punctuated by catastrophic events. Examples of geoscience processes include surface weathering and deposition by the movements of water, ice, and wind. Emphasis is on geoscience processes that shape local geographic features, where appropriate.

Assessment Boundary: N/A

| Science and Engineering Practices (SEP) | Disciplinary Core Ideas (DCI) | Crosscutting Concepts (CCC) |
|---|---|---|
| Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. <ul style="list-style-type: none"> Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe nature operate today as they did in the past and will continue to do so in the future. | Earth's Materials and Systems <ul style="list-style-type: none"> The planet's systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years. These interactions have shaped Earth's history and will determine its future. The Roles of Water in Earth's Surface Processes <ul style="list-style-type: none"> Water's movements—both on the land and underground—cause weathering and erosion, which change the land's surface features and create underground formations. | Scale, Proportion, and Quantity <ul style="list-style-type: none"> Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small. |

Pennsylvania Context: Examples of Pennsylvania context include local Pennsylvania topography resulting from glacial impacts, plate collisions, and erosion.

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.02.01.01.a: Research and describe different types of geographic data used in AFNR systems. |



| Standard Source | Possible Connections to Other Standard(s) or Practice(s) |
|--|---|
| Science, Environmental Literacy and Sustainability (NAAEE) | 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.3.5.6-8.A: Cite specific textual evidence to support analysis of science and technical texts. CC.3.6.6-8.B: Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. |
| PA Core Standards and Practices: Math | MP.2: Reason abstractly and quantitatively. CC.2.2.6.B.2: Understand the process of solving a one-variable equation or inequality and apply it to real-world and mathematical problems. |
| PA Standards: Social Studies | 7.2.6.B: Describe the physical processes that shape patterns on Earth's surface. |
| 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-3G: Explain how knowledge gained from other content areas affects the development of technological products and systems. |