



Grades 6–8

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

Students who demonstrate understanding can *develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.*

Clarifying Statement: Emphasis is on the ways water changes its state as it moves through the multiple pathways of the hydrologic cycle. Examples of models can be conceptual or physical.

Assessment Boundary: A quantitative understanding of the latent heats of vaporization and fusion is not assessed.

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Crosscutting Concepts (CCC)
<p>Developing and Using Models 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 a model to describe unobservable mechanisms. 	<p>ESS2.C: The Roles of Water in Earth's Surface Processes</p> <ul style="list-style-type: none"> Water continually cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation and crystallization, and precipitation, as well as downhill flows on land. Global movements of water and its changes in form are propelled by sunlight and gravity. 	<p>Energy and Matter</p> <ul style="list-style-type: none"> Within a natural or designed system, the transfer of energy drives the motion and/or cycling of matter.

Pennsylvania Context: Examples of Pennsylvania context include but are not limited to the investigation of local watersheds that may be considered the basis for developing a model of the hydrologic cycle, the evolution of potholes from the hydrologic cycle, and glaciation in Pennsylvania's past.

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.3.5.6-8.G: Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).
PA Core Standards and Practices: Math	N/A
PA Standards: Social Studies	7.2.6.B: Describe the physical processes that shape patterns on Earth's surface.



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-3E: Analyze how different technological systems often interact with economic, environmental, and social systems.