

How Water Shapes the Earth's Surface

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Published by *K20 Center*

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Grade Level 6th Grade

Course Earth Science

What is in a phenomenon-driven three-dimensional (3D) instructional set? These science resources use phenomena to facilitate engaging and meaningful learning, instruction, and formative assessment. Each resource set contains a guiding document and three other types of documents: an Instructional Task (IT), a corresponding formative Assessment Task (AT), and a corresponding Pattern Analysis of Student Thinking (PAST). These resources are not intended to be a complete lesson plan. Three-dimensional learning is not limited to one specific type of lesson format and is compatible with most lesson plan models. The IT proposes two or more possible phenomena that could be used to drive an instructional sequence addressing a specific OAS-S standard. It also provides suggestions for engaging students with the phenomena through meaningful learning experiences in three dimensions. The AT focuses on a phenomenon-associated scenario. It contains one or more tasks designed to give students opportunities to show their thinking and provide evidence-based explanations about the disciplinary core ideas (DCIs) using crosscutting concepts and scientific practices for that standard. The PAST document is directly associated with the AT. It describes the intended purpose of each part of the AT and includes relevant student response themes to help teachers identify patterns of student thinking. It also provides guidance and insight into how to interpret student responses and possible instructional moves for facilitating student understanding of a specific DCI concept. Individual teachers can use the PAST as a tool to construct a rubric for the AT.

Performance Expectation (PE)

Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.

Disciplinary Core Ideas (DCI)

Earth's Materials and Systems

The planet's systems interact over scales that range from microscopic to global in size. These interactions have shaped Earth's history and will determine its future.

The Roles of Water in Earth's Surface Processes

Water's movements—both on the land and underground—cause weathering and erosion, which change the land's surface features and create underground formations.

Resource Attachments

Phenomenon-Based Instructional Task

- Guide to Using a Phenomenon-Driven Three-Dimensional Instructional Set—How Water Shapes the Earth's Surface.pdf
- Instructional Task—How Water Shapes the Earth's Surface.pdf

Formative Assessment Task

- Assessment Task—How Water Shapes the Earth's Surface.pdf

Pattern Analysis of Student Thinking (PAST)

- Pattern Analysis of Student Thinking—How Water Shapes the Earth's Surface.pdf