

DOUG'S GEOLOGY JOURNAL

Episode 3: An Army of Caterpillars Learning Guide for the Classroom

Topics

Basin and Range Geologic Province
Plate tectonics
Crustal stretching
Crustal blocks
Playas, or dry lakes
Ichthyosaur fossils
Dormant volcanoes
Flood basalts
Sky Islands
Wilderness area
Granite



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The Story

The Basin and Range geologic province is centered on the state of Nevada. Here, the Earth's crust has been stretched apart by tectonic forces. These forces have produced many basins (valleys) and ranges (mountains) lined up parallel to each other. California's Death Valley is a place where the crust has dropped below sea level, and in Nevada, Triassic-aged fossils of sea creatures can be found in rocks far above sea level today. Since the Ice Ages, deep lakes have dried up to form playas, except one, Pyramid Lake, which is fed by a river. The Basin and Range also has earthquake faults, geysers, massive basalt flows, and Sky Islands, where isolated ecosystems exist in high mountain ranges. Wilderness areas protect many geologic features.

Engagement Questions

- a. What happens when tectonic forces pull apart the Earth's rocky ground?
- b. Are lakes permanent features of a landscape, and always full of water?

Focus Questions for Viewing

1. Why is Pyramid Lake one of the few lakes left in the Basin and Range?
2. Why are many of the lakes in the Basin and Range dried up?
3. During the Triassic Period, how different was the area where the Basin and Range is today?

4. What are Sky Islands and how are they formed?
5. Give two examples of evidence that plate tectonics are at work in the Basin and Range. For one example, describe the process which changed some physical feature(s) of the Earth's crust.
6. What are some benefits of wilderness preservation?

Vocabulary

Crustal stretching	Geyser
North American Plate	Fissure
Pacific Plate	Flood basalts
Ecosystem	Caldera
Ice Ages	Glacier
Ichthyosaur	Rifting
Triassic Period	Sky Islands
Earthquake fault	Dendrochronologist
Dormant volcano	Granite
Xenolith	

Geologically important places featured in the video

Death Valley	Santa Rosa Range
Carrizo Plain	Winnemucca, Nevada
Pyramid Lake	White Mountains
Lake Tahoe	Bristlecone Pine Forest
Truckee River	Ruby Mountains Wilderness Area
Stillwater Range	Elko, Nevada
Berlin-Ichthyosaur State Park	Kelso Dunes
Route 50	Granite Mountains
California Mojave National Preserve	
Cima Volcanic Field	

Web Links

Series web site: <https://dougsgeology.com>

Series on PBS web site: <https://www.pbs.org/show/dougs-geology-journal/>

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Doug's Geology Journal produced by Diane LaMacchia and Doug Prose

Funding by the National Science Foundation



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