

# DOUG'S GEOLOGY JOURNAL

## Episode 2: It's All My Fault Learning Guide for the Classroom

### Topics

Earthquake fault  
Plate tectonics  
Creeping fault  
Rocks, rivers, and canyons moving along fault  
Land rotation from fault movement  
Mountain building along fault  
Coastal terraces  
Serpentine rocks along fault



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### The Story

The San Andreas fault runs for 800 miles in California. Along the way, movement of the San Andreas fault has impacted many of the topographical and physical features in California. These impacts include: the formation of an oasis in the desert of the Coachella Valley, the unique patterns of earthquakes in the city of Parkfield, the formation of the San Gabriel Range, the torquing of the coastal mountains and land below Santa Barbara, and the hauling of granite several hundred miles up the coast of California. The Santa Cruz Mountains were built by fault movement, helping to create a unique redwood forest.

### Engagement Questions

- a. What do you know about the San Andreas Fault?
- b. When faults move in earthquakes, how might that affect the landscape?

### Focus Questions for Viewing

1. What has been happening along the San Andreas Fault for millions of years?
2. Why is there a beautiful palm tree oasis in the dry, hot Coachella Valley Preserve?
3. What causes the San Andreas fault to creep along like a serpent in the area near the town of Parkfield?
4. What has happened in the mountainous area of Santa Barbara to make the mountains tall and the coastline face south rather than west?
5. Where did the rocks in the Pinnacles National Park come from, and how did they get where they are now?

6. Twenty million years ago, an underwater canyon formed off the ancient coast. The canyon was formed by the Salinas River, which was connected to a mighty river which fed it. What was that river?

## Vocabulary

Tectonic plates	Terraces
Fault	Ice Ages
Pacific Plate	Climate change
North American Plate	Erosion
Creeping segment	
Seismic instruments	
Serpentine rocks	
Torquing the crust	
Granite	

## Geologically important places featured in the video

Bombay Beach on the Salton Sea	Santa Cruz Mountains
Coachella Valley Preserve	Santa Cruz
Parkfield—Earthquake Capital of the World	Golden Gate, San Francisco
Carrizo Plain	San Andreas Lake
San Gabriel Range	Stinson Beach
Santa Barbara	Point Reyes National Seashore
Pinnacles National Park	Tomales Bay
Monterey Peninsula	Alder Creek Beach
Salinas River	

## 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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