

DOUG'S GEOLOGY JOURNAL

Episode 4: Two Tasty Plates Learning Guide for the Classroom

Topics

Limestone rocks: formation and uses
Collision of African and Eurasian plates
Subduction
Geoparks
Mount Etna volcano
Exotic crust and Sardinia
Messinian Crisis, climate change



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The Story

The unique topography of Sicily was created by the subduction of the African plate under the Eurasian plate, and the uplifting of the seafloor. Limestone creates cliffs all over the island and was used to construct uniquely beautiful edifices in Sicily. The erupting Mount Etna volcano strangely erupts both lava and ash at different times. Tectonics moved a piece of the island of Sardinia many miles south and attached it to Sicily. White rock formations were originally deposited on the Mediterranean seafloor when the sea dried up millions of years ago, and plate tectonics pushed them up to create cliffs in southern Sicily.

Engagement Questions

Imagine going back in time, thousands of years, then millions of years. What do you think could have been happening on Sicily, which sits on top of two colliding tectonic plates during the following time periods? Have fun and take a guess!

- a. 5,000 years ago
- b. 500,000 years ago
- c. 6 million years ago

Focus Questions for Viewing

1. How was the island of Sicily created?
2. Many of the beautiful rock formations in Sicily are made of limestone. How is limestone created?
3. What is the evidence that the limestone comes from under the sea?
4. All over Sicily, you can see impressive limestone cliffs (called nappes) rising steeply in the landscape. What geological process formed these nappes?

5. What are some things about the Mount Etna volcano that make it unusual?
6. Why is Sicily (and the Mediterranean Sea) a great place to mine salt? Explain.
7. Put the following events in order, from the oldest to the most recent:
 - a. Mount Etna was born and began to grow
 - b. the Mediterranean Sea dried up
 - c. the African Plate began to subduct under the Eurasian plate
 - d. the Phoenician people were mining salt in Sicily

Vocabulary

Tectonic plates	Geopark
African plate	Fossil
Eurasian plate	Basalt eruption
Subduction	Ash eruption
Limestone	Exotic crust
Plateau	Salt pan
Thrust sheet, or Nappe	

Geologically important places featured in the video

Mediterranean Sea	Messina
Tyrrhenian Sea	Strait of Messina
Roca di Cefalu	Sardinia
Valley of the Temples	Turkish Steps
Agrigento	Trapani salt mine
Calascibetta	Sciacca
Enna	Siracusa
Rocca di Cerere Geopark	Ortigia
Madonie Mountains	Fountain of Arethusa
Mount Etna	Caltagirone
Taormina	Necropolis of Pantalica

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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