geography southwest

Place To Visit

Lizard Geology at Kennack Sands

Location & Access:

Kennack Sands is located on the eastern side of the Lizard peninsula, near the village of Kuggar (TR12 7LT).

Kennack is accessed via the A3083 from Helston to Lizard, then by turning left onto a minor road signed to Ruan Minor. At Kuggar, a dead-end road passes Kennack Sands holiday Park and leads to the beach.

Bus service 34 operated by Transport Cornwall runs between Redruth, Helston and the Lizard, and links to Kuggar.



Serpentine boulder, West Beach. Photo: Paul Berry

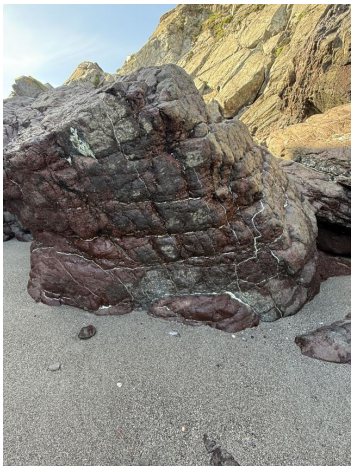
Key Geography: Ophiolite complex, unique geology (including different serpentine rocks)

INVESTIGATING THE UNIQUE GEOLOGY OF THE LIZARD AT KENNACK SANDS

Kennack Sands is located on the more sheltered eastern side of the Lizard peninsula, and boasts an excellent sandy beach which makes it a popular site for swimming, surfing, and rock pooling. It is also a GCR (Geological Conservation Review) site of national and international importance for its geological features. A short walk here offers easy access to some unique rock types, and provides an extraordinary window to the ophiolite complex of the Lizard peninsula.

The Lizard ophiolite is a well-preserved slice of ancient oceanic crust and upper mantle that was thrust up onto the surface around 370 million years ago. This event was the result of a collision between the supercontinents of Euramerica and Gondwanaland which squeezed out the deep Rheic Ocean that existed between them. It was during this time that a section of the ancient sea floor was torn off and dragged up onto dry land, allowing a rare opportunity to study material from the crust beneath the ocean and perhaps even the mantle as well.

The name ‘ophiolite’ comes from the Greek words ‘ophis’ meaning ‘snake’ and ‘lithos’ meaning ‘stone’. Other classic examples of an ophiolite complex can be found in Oman, Cyprus (Trodos Mountains), and the Shetland Islands.



Bastite Serpentine. Photo: Paul Berry

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Curiosity Questions:

Just north of Kennack is the Goonhilly Earth Station. In 1962, the first transatlantic satellite TV broadcast from the USA was received here. What was the name of the satellite?

It is purely coincidental that much of the Lizard peninsula is composed of serpentine rock. True or false?

Further information:

https://devongeography.wordpress.com/2026/06/11/investigating-the-unique-geology-of-the-lizard-peninsula-at-kennack-sands/

Reviewer: Paul Berry B Ed (hons) M Sc FRGS
Former Assistant Vice Principal and Head of Geography at South Molton Community College with 35 years of classroom experience.
Now an Iceland Field Studies Tutor with Rayburn Tours.
Blog: www.devongeography.wordpress.com Twitter: @unicorn4275

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Lizard Geology at Kennack Sands

The beach below the cafe is known as West Beach, and offers an immediate opportunity to study some of the many different special rocks to be found on the Lizard peninsula, including serpentine and gneiss.



Dunite Serpentine.
Photo: Paul Berry

One rock that originated from mantle and was thrust up from under the crust is peridotite, rich in iron and magnesium. Great heat and pressure transformed it into different types of serpentinite or serpentine, so named due to its greasy and soapy snakelike appearance. Different coloured versions of this rock - red, green, yellow, and black - can be found as pebbles on the beaches, along with a multitude of other geology. Two distinct types of serpentine can be identified in the surrounding headlands and ridges on beach. These are red (bastite) serpentine and light green (dunite) serpentine. Serpentine rock is relatively soft and easy to work, and after Queen Victoria visited Penzance in 1846 and ordered several serpentine ornaments for her house on the Isle of Wight, a boom industry was born in this area. There were several quarries located across the peninsula, and a large factory operated at nearby Poltesco. Several serpentine workshops still exist today in Lizard village.

Kennack gneiss is another 'star' rock to be found here. A visually striking swirling mix of bands of pink granite and dark grey basalt give the appearance of a rocky striped toothpaste. An obvious outcrop of Kennack gneiss can be studied immediately to the right as you walk onto west beach from the slipway.

The cliffs to the right of the slipway also contain pink and brown banded Kennack gneiss, and all across the beach are dykes of gabbro and basalt, forced upwards and into cracks in the serpentine.
There are also pods of serpentine, picked up by the gneiss and embedded as it cooled. These 'foreign bodies' are known as xenoliths. Pockets of soft green soapstone (saponite), talc, and white asbestos (chrysotile) can also all be seen within the masses of serpentine.



West Beach and Caervarracks outcrop in distance. Photo: Paul Berry

Kennack Sands is divided into two distinct beaches by a jagged rocky outcrop called Caervarracks (locally pronounced as 'gavrocks') that extends out to sea for around 200 metres. This is a reef of rich red bastite serpentine, criss-crossed by veins of multicoloured minerals giving the rock the appearance of crazy paving or reptile scales. This was particularly popular with serpentine workers in days gone by due to its unique appearance. Amethyst can also be found here.

Beyond the ridge of Caervarracks is East Beach. Directly beneath the cliffs here is a massive dyke of grey basalt, and at the far end of the beach is Green Saddle, a prominent outcrop of pyramid-shaped green serpentine. The beach at low tide is a great place to collect pebbles from a range of different rock types - Kennack gneiss, grey basalt, both types of serpentine, gabbro, and flints. At the back of the beach are the remains of World War Two defences - an extensive anti-tank wall (which used to extend along the west beach as well), and an old pill box on the hillside.

Behind the sandy beaches of Kennack can be found one of only three sand dune systems on the Lizard peninsula (the others being found at Gunwalloe and Poldhu). These sand dunes are known as Towans in Cornwall, and form part of the Lizard Nature Reserve, the largest NNR in lowland Britain. Many different species of flora and fauna are found only in this special coastal habitat.

During the last Ice Age, Kennack was part of a vast plain that stretched across to France, with no sea to be found. An exceptionally low tide here exposes a layer of grey clay/peat with evidence of a fossilised marsh/forest that once existed here.

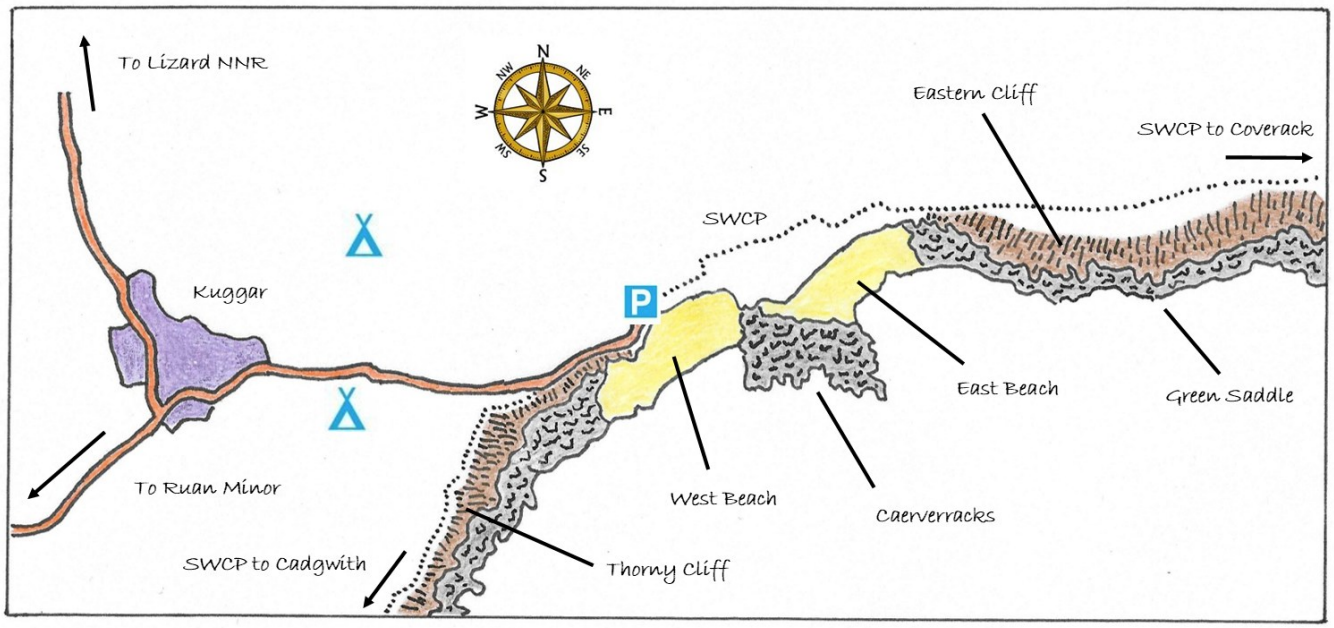
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geography southwest

Place To Visit

Lizard Geology at Kennack Sands

Exploring Kennack Sands





Veined Serpentine. Photo: Paul Berry

Answers to Curiosity Questions:

Just north of Kennack is the Goonhilly Earth Station. In 1962, the first transatlantic satellite TV broadcast from the USA was received here. What was the name of the satellite? (*Telstar*)

It is purely coincidental that much of the Lizard peninsula is composed of serpentine rock. True or false? *(True. The name Lizard is a corruption of the Cornish name Lys Ardh, meaning 'high court', while serpentine rock is so named due to its similarity in texture and colour to snake skin)*

(continued overleaf)