

explore start bay

The Earth History Trail

What can you see..? And where..?

The rocks beneath your feet help determine the shape of the land, what grows on it and how and where we live. At the coast the sea has shaped the landscape and also washed away the soil, making it easier to see how the rocks have been formed.

A rocky start

To create the interesting shapes that you can see, over hundreds of millions of years, rocks were formed, compressed, folded and then weathered.

The Start Bay rocks date back 400 million years to when much of the area was under a tropical sea and nearer to the equator. Sediment eroded from the land further north settled in river beds on the coastal plain and under the sea – forming 'sedimentary' rocks.

A long period of mountain building followed caused by continents colliding. This folded the rocks into unusual shapes. The enormous weight piled on by the mountains compressed the rocks making them harden up and change into 'metamorphic' rocks.

A changing climate

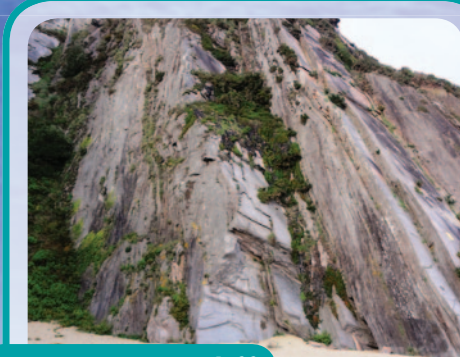
Over time, the rocks have weathered and the changing climate has also had an impact. When the climate was warmer, sea levels were higher and the breaking waves wore flat areas on the rocks called 'wave cut platforms', as at Hallsands, which are now above current sea levels.

Slapton Ley and Widdicombe Ley lakes were also formed by climate change. During the last ice age lots of water was locked up in ice sheets. This made the sea level fall and the coastline move 20 miles further out than it is now. When the climate warmed, the ice melted making the sea level rise. The sea returned, pushing a ridge of shingle before it, which dammed a number of streams to create the lakes.



Castle Cove

There are two types of slate in the Bay: the older Dartmouth Slates here formed by river sediments whereas the Meadfoot Slates were formed in the sea.



Strete Gate Cliff

The Dartmouth Slates that run across the middle of the area are visible from the beach.



Slapton Ley

Two freshwater lakes, the Higher and Lower 'Leys', are held back by a thin band of shingle beach brought in by rising sea levels after the last ice age. The inland shores of the Leys are the original coastline.



Blackpool Sands

With the right combination of low tides fossilised forest remains can be seen on the beach here, at North Hallsands and more frequently over at South Milton/ Thurlestone beach.



Slapton Village

The red soils and gently rolling hills were caused by erosion of sandstones in a desert climate (during the Permian period). Seasonal flash floods then swept large quantities of sediment into the valleys, smoothing the landscape.



Slapton Sands

The pebbles reveal the beach story: the yellow ones are flints or chert which make up nearly three quarters of the beach material. They come originally from the chalk 20 miles offshore. The grey pebbles are slates from the local cliffs.



Limpet Rocks Torcross

Igneous intrusions can be seen here. Molten rock seeped into gaps in the Meadfoot Slates where folding has created cracks.



You can also see a wave cut platform here.



Start Point

You can easily see wave cut platforms which were formed when sea levels were higher. Extremely jagged rocks line the ridge. The ice sheet which covered much of Britain in the last ice age didn't come this far south so the rocks were subjected to freezing and thawing causing massive movement of loose material on the surface.



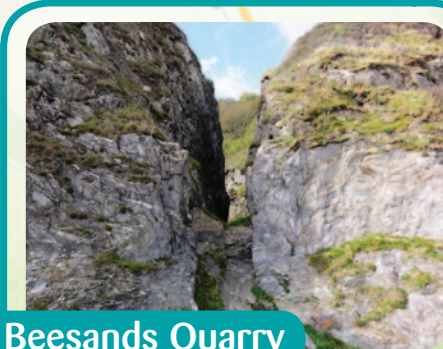
South Hallsands

The ruined village of Hallsands is built on wave cut platforms in the mica schist rocks. A protective shingle beach created by sea level rise after the ice age was removed by dredging before the First World War to develop Plymouth docks. This made the village vulnerable to storms. In the background you can see the slate rocks north of the fault.



Torcross Coast Path

There is slate all around you on the coast path heading south from Torcross! There are slate field boundaries (the big stones), slate walls, and even the path is slate.



Beesands Quarry

Before the quarry was closed in 1885 the bluish Meadfoot Slate was used for roofing and building in the area. Much of the stone was transported by boat from the beach. Loose material on the south side of the quarry is the remains of the spoil heap.



Widdicombe Ley

This freshwater lake at Beesands was also created by the bank of shingle pushed up by rising sea levels after the ice age.



North Hallsands

The rocks on the outcrop below the Coastguard cottages are mica schists, metamorphic rocks made of the mineral mica.



North Hallsands Beach

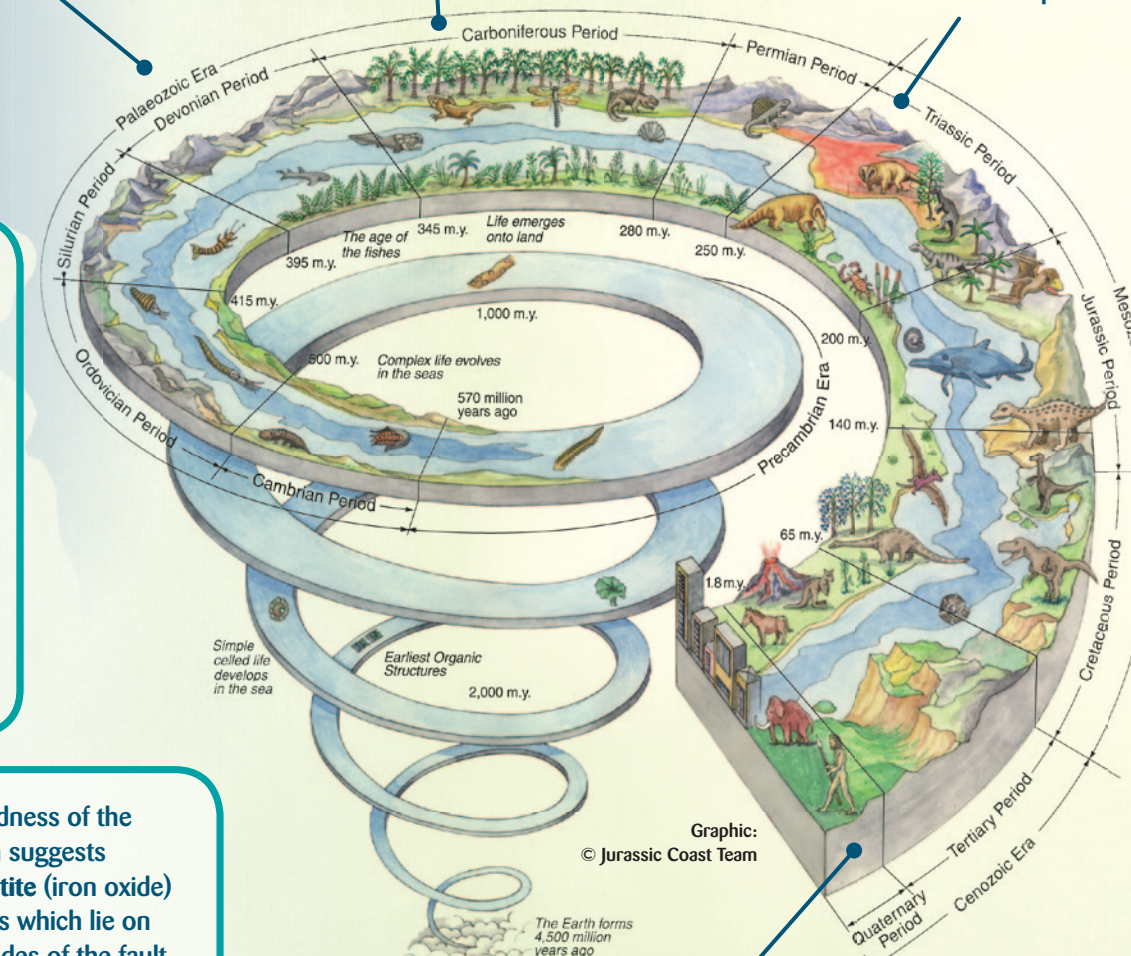
The redness of the stream suggests haematite (iron oxide) – rocks which lie on both sides of the fault line running between the schists and slates.

The Rock of Ages

This is when our rocks were first formed. They're called 'Devonian' – because they were first studied here.

This is when the big mountain building period happened, caused by continents colliding - rocks were folded and compressed.

The red sandstones were formed during the permian and triassic period when a desert or semi arid environment covered most of Britain and northern Europe.



The wave cut platforms at Start Point date from around 150,000 years ago. The shingle barrier beaches started to form between 10,000 and 3,000 years ago, after the last ice age.

What makes the Earth History of Start Bay special?

- The rocks here are much older than the 'Jurassic Coast' and there are many different rock types to see:
 - sedimentary – layers formed from eroded rock fragments washed into rivers and the sea – (sandstone, breccia and mudstone).
 - metamorphic – during the period of mountain building sedimentary or igneous rocks already in place were folded and compressed by the rocks above (forming slates and schists). The schists are made up of different minerals – in this area mica, which can have a shiny appearance and hornblende which has a grey green appearance. The pressure causes the minerals in the rock to align into a

- 'cleavage' with a direction which is usually different from the original sedimentary 'bedding plane'.
 - volcanic (igneous) - made from cooled lava sometimes seeping into cracks made during folding forming intrusions (basalt, dolerite, tuff).
- The schist rocks at the southern part of Start Bay are the oldest in Devon. They are separated off by a fault line running through North Hallsands beach and over to Hope Cove.
 - There is evidence of much more recent climate change: wave cut platforms and the shingle barrier beaches.

