geoHeritage Fife was set up in 2008 to:
• publicise Fife's geological heritage
• provide educational resources in geology
• promote geotourism.

If you would like to assist with these aims, consider joining the group by contacting geoHeritage Fife
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E: geoheritagefife@btinternet.com
Scottish Charity No.: SC 003269

Fife LGS/RGSI
RGS were Regionally Important Geological and Geomorphological Sites, but are now known as Local Geodiversity Sites (LGS).
Fife LGS is concerned with identifying and assessing important sites and notifying the statutory planning authority of these sites. Fife RGS was reconstituted into geoHeritage Fife in 2005.
Contact Mike Browne (mwb@lgs.ac.uk)

SAFETY INFORMATION
This trail, about 8km long in total and undulating, follows part of the Fife Coastal Path. Choose a low tide for the walk. You must wear stout footwear and clothing appropriate for the current weather conditions. A walking pole could be useful. DO NOT HAMMER OR REMOVE ROCKS.

TRAVEL INFORMATION
Rail: Scotrail serves Kirkcaldy with trains from Edinburgh, Inverness and Aberdeen. Kirkcaldy is served by trains from Edinburgh, Dundee and Aberdeen.
Bus: Stagecoach services 7 and 7A serve Kirkcaldy from Leven, Kirkcaldy and Dunfermline.

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Kinghorn - Kirkcaldy
Geological Trail

See evidence of tropical seas teeming with corals at a time when this part of the world was near to the equator about 325 million years ago.

There were also volcanoes spewing out molten lava.

Later earthquakes cracked the rocks to create faults which you can see preserved today.

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Localities 1 and 2

**Locality 1**

The bluff is made up of volcanic ash. Hot liquid lava erupted under the sea and fragmented explosively into fine-grained ash and rounded embers of "pillow" lava.

On the rocky beach between the bluff and the path, there are good examples of these "pillows", formed when red hot liquid lava chill rapidly under water. When the ash and plesias built up above sea level, massive compact lava formed on the new land.

**Pillow lava**

<Return to the main path and continue N>

**Locality 2**

View to locality 2, showing a white limestone (called the First Abden) overlain by basaltic lava in the distance. The strata dip towards the north-east.

<At the point where the path rises more steeply, take the small grassy path on the right, down to the beach (NT2750 8748)>
Locality 4 (viewpoint)
<Immediately after Locality 3, take the right-hand path down a small hill. Do not go down to the beach here. If you reach more steps, go up the cliff on the main path you have gone too far.>

The reef facing you (at low tide) is formed by the Hunter (second Abden) Limestone. Underneath is a dark redstone which contains marine fossils.

<Face north in sea modern coastal erosion in action.>

This is a landslip showing how soft and loose rock material is easily eroded by the weather and the sea.

<Retrace your steps to the main path and turn right. The path climbs steeply with steps then descends. After about 250m you reach a set of steps and fence going downhill. Descend to the beach and turn right along the foreshore.>

Locality 5
As you reach the foreshore, the rocks beneath you contain white spots.

These are areas with gas bubbles which were filled with minerals. The spots are called amygdules.

Siphonodendron colonial corals
Look stonily and you will see that it contains a mesh-work of small tubes. These are the fossilised remains of a colonial coral named Siphonodendron which lived about 325 million years ago in warm tropical seas at a time when Scotland lay close to the equator.

<Return to the steps in the cliff up to the main path, turn right, and proceed to the concrete steps. At the top, walk through the gap in the stone wall then follow the north side of the wall downhill.>

At the lower end of the wall, look south reaching the end across the Firth of Forth. On a clear day ahead of you can see four other islands, an extinct volcano in Edinburgh, with the Pentland Hills behind. Further to the left (NE) you can see the outline of Lambr Law (another volcano) in Fife, then further right laptops; stumps of volcanic cones form the Bass Rocks and North Skerwick Law.

<At this point, decide whether or not you wish to inspect Locality 7, as the rock steps can get slippery. If not, walk back uphill along the wall to the main path. Turn right and walk northwards.>

Locality 7 (optional)
<At the bottom of the wall, turn left downhill and follow concrete steps to the metal bridge.>

A cave has formed along the line of a small fault which cuts through a brecciated lava flow. This fault weakened the rock which has allowed the sea to erode into the cliff. Look out

The Limestone (Mill Hill Marine Band) just beneath the cliff at Seaford Tower is full of crinoid (sea lily) ossicles (also known as St Cuthbert's beads).

<Return to the main path, turn right, and walk past the ruined tower.>

Locality 9
Walk along the wide coastal path past the ruin houes. Look out to sea and there is a prominent bed of limestone (NT 2798.8882). This is not visible at high tide.

This view shows a limestone bed which has been broken in two pieces by compressional forces. This feature is called a thrust fault, where the rocks on the left and the right have been pushed towards each other so that the hard limestone had to crack and slide under itself.
A small fault (indicated by the black line) cuts through the Hurlet Limestone. The limestone in the fault zone is red, due to an abundance of the iron oxide haematite, but is yellow nearby. (NOTE: This view is taken from the main path, but the trail takes you along the beach.)

The rock at the fault contains blocks of limestone broken up during ancient earthquakes.

< Walk south until you see an expanse of white rock (below).>

Locality 0

<Retrace your steps to the wall and walk uphill to rejoin the main path. Turn right and continue N. As you approach the ruins of Seatfield Tower, you will see a cliff of reddish rock 30m before the tower. Take a short track down to the beach.>

Locality 10

<Walk farther north-eastwards along the path. Just before you reach a large concrete breakwater descend to the beach.>

Bed of limestone

Direction of pressure

<Return to Kinghorn along the main path (2.5km), or continue towards Kirkcaldy for a train or a bus (2.5km).>

Locality 6

This white rock is the Hurlet Limestone. Modern tidal coatings may make it difficult to see the fossils.

This view shows cross-bedding which represents sand bars migrating in shifting river channels.

The red sandstone shows cross-bedding features (see below). These were created by sand deposited by a large river which brought its sediment from a long distance north of Fife.

Just south of the breakwater, there is a reef formed by molten rock (basalt) which has intruded into horizontal beds of sandstone. This feature is called a sill.

A close-up view of the basalt shows crystals and remains of gas bubbles.