

## SCOTLAND ROCKS! 2012 ITINERARY

Day 1. Edinburgh – Meet at hotel in Edinburgh at 3:00 PM. There will be an orientation, a brief walking introduction to Edinburgh, with a visit to the Royal Mile and the Scottish Parliament. We will also gather for a welcoming dinner. Overnight in Edinburgh.

Day 2. Arthur's Seat and Edinburgh – Less than a mile from and overlooking the center of Edinburgh are the remnants of a volcano that was active during the Carboniferous Period about 350 million years ago. About half of the day will be spent exploring the volcanic deposits at Arthur's Seat and Salisbury Crags. The remainder of the day will allow time for a visit the Edinburgh Castle (which is also built on a volcano), explore the city, go shopping, and recover from the travelling! Overnight in Edinburgh.

Day 3. Siccar Point and East Lothian – Coach trip to Siccar Point, lunch in Dunbar, and afternoon stops to sample the varied Carboniferous rocks of East Lothian. We will visit Hutton's Unconformity at Siccar Point and then travel to Dunbar for lunch. Dunbar is a harbor town on the estuary of Firth of Forth that was the home of John Muir. We will go to the John Muir museum in his former home and explore the volcanic pipes that are exposed in the cliffs. Catcraig, near Dunbar is a coastal area that exposes a cyclical deposit of sandstone, mudstone, coal, and limestone that marks a changing environment during the Carboniferous Period from a bay to a swamp to a shallow sea. The final stop of the day will be the pretty seaside town of North Berwick, famous for its offshore islands including the Bass Rock. Overnight in Edinburgh.

Day 4. St. Andrews – Coach to St. Andrews in Fife for a coastal walk to view volcanic vents, igneous intrusions, and beautifully folded sedimentary rocks, all formed in Carboniferous times when the centre of Scotland was a subsiding rift valley. There will also be time to enjoy the historical interest of St Andrews town. Overnight in Edinburgh.

Day 5. Travel from Edinburgh to Inverness, a scenic journey through the Highlands. Stop in the Cairngorms National Park and take the Mountain Railway to view the granite mountain scenery; also distillery, e.g. Dalwhinnie. Overnight in Inverness.

Day 6. Inverness and the Black Isle – Morning in Inverness, and afternoon visit to the Black Isle, near Inverness. This will give us a chance to see the famous desert red beds of the Old Red Sandstone. These are approximately 400 million year old Devonian aged rocks that formed in the interior of a large continent and have abundant primitive fish fossils. We will study the work of Hugh Miller, a stonemason who published the first account of fossil fish in the Old Red Sandstone in 1841, and visit his cottage in the village of Cromarty. Overnight in Inverness.

Day 7. Travel to Ullapool, the gateway to the Northwest Highlands, regarded as one of the classical areas of geology in the world. Morning walk near Ullapool introducing the varied rocks of the area, including billion year old Torridonian Sandstone and sparkling white quartzite formed in shallow seas in Cambrian times. Afternoon visit to Knockan Crag to view the Moine Thrust and some of the structural complications of the Assynt area, which are famous throughout the world and have been of fundamental importance in interpreting the evolution of mountain belts. Overnight in Ullapool.

Day 8. Further exploration by coach of the Assynt area, including the stunning ancient eroded landscape of Precambrian crystalline rocks around Lochinver, which are up to 3.3 billion years old, banded in white, pink, and black, everywhere folded and intensely metamorphosed deep within the crust. These were exposed at the surface 1200 million years ago before being buried again beneath the younger sedimentary rocks. We will also take a short walk to the Bone Caves, shallow caves eroded in 500 million year old limestones that formed in shallow tropical seas which contained the bones of some of Scotland's prehistoric and ice age mammals. Overnight in Ullapool.

Day 9. Journey to the Isle of Skye on the west coast of Scotland. Skye is renowned for its incredible scenery, resulting from the great variety of rock types and ages. Its distinctive landform regions expose lava flows and ancient landslides in the west and igneous intrusive rocks and dykes in the mountains to the north. The coach journey down the remote coast will allow us to appreciate more Highland scenery and include a stop at Inverewe Gardens, famous for its exotic plants that thrive in a northern latitude due to the climate-moderating effects of the North Atlantic Drift. Overnight on Skye.

Day 10. Boat trip from Elgol into Loch Coruisk in the heart of the Cuillin mountains, with several hours on shore to explore this wild area. This is the centre of one of Scotland's great volcanoes, erupting 60 million years ago as the North Atlantic started to form. Overnight on Skye.

Day 11. Explore the north of Skye; the oldest rocks here are sedimentary, dating from the Jurassic Period, and along with many other fossils, dinosaur tracks have been found. Among and above the sedimentary rock layers are intrusions and lava flows associated with the same volcanic activity which formed the Cuillin mountains. We will visit one famous site called the Quiraing, where the more resistant lava flows have been undercut by erosion of the sedimentary rocks, developing spectacular landslips. Overnight on Skye.

Day 12. Return to Edinburgh via the Skye Bridge, with a stop at Eilean Donan castle and Glencoe, an eroded volcanic caldera dating from around 420 million years ago. Final evening meal in Edinburgh. Overnight in Edinburgh.