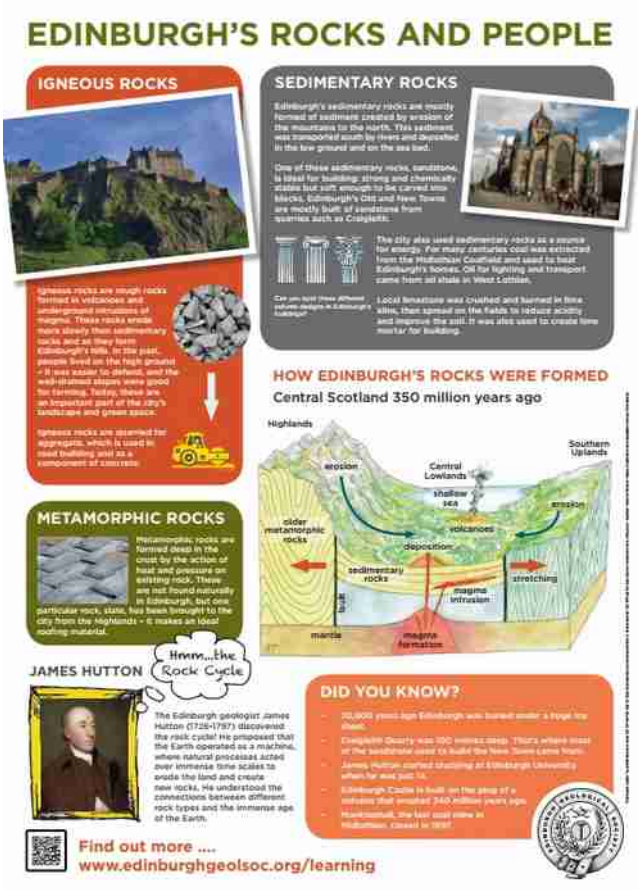
Edinburgh Geological Society

School Poster – Edinburgh's Rocks and People



What makes Edinburgh special? Many different factors make a city, but one key feature that most visitors to Edinburgh notice is the dramatic scenery of the city centre. This is a landscape of rocky crags, cliffs and steep slopes surrounded by lower, flatter ground. It is derived from a mix of different kinds of rock – sedimentary and igneous.

People have used the landscape of Edinburgh and its underlying geology in different ways over the last 10,000 years: finding suitable sites for settlement, defence and agriculture, and quarrying sandstone for building, and coal for fuel. The character of today's city, with the Old and New Towns designated as a World Heritage Site, derives greatly from the bedrock, and the way in which this has been eroded.

The Edinburgh geologist James Hutton (1726-1797), a key figure in the Scottish Enlightenment, used locations in Scotland to support his 'Theory of the Earth'. He suggested that the Earth operated as a machine, where natural processes acted over immense time scales to erode the land and create new rocks. This was the beginning of our understanding of the rock cycle and the inter-relationships between sedimentary, metamorphic and igneous rocks.

The *Edinburgh's Rocks and People* poster is supported by online resources, with suggested activities and further information that encourages learners to find out about local geology, and explore the ways in which Edinburgh's geology has influenced people in the past and present.

The poster and resources are relevant to several Experiences and Outcomes within the Curriculum for Excellence in Sciences (SCN 2-17a, 3-17a) and Social Studies (SOC 2-07a, 3-07a). They also form a good basis for inter-disciplinary learning and project work that connects rock properties, Earth processes, landscape, resources and people.

This poster has been produced by Edinburgh Geological Society and is available for free in printed and online formats. It is designed for classroom use, to give an introduction to geology of Edinburgh and demonstrate the connections between rocks and people. We are keen to get feedback on these resources, and to develop them further. Please get in touch.

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www.edinburghgeolsoc.org/learning

Online resources – www.edinburghgeolsoc.org/learning

Online resources include further information and suggested activities exploring these themes:

Edinburgh's Rocks

What kind of rocks do we find in Edinburgh? How have they been used by people?

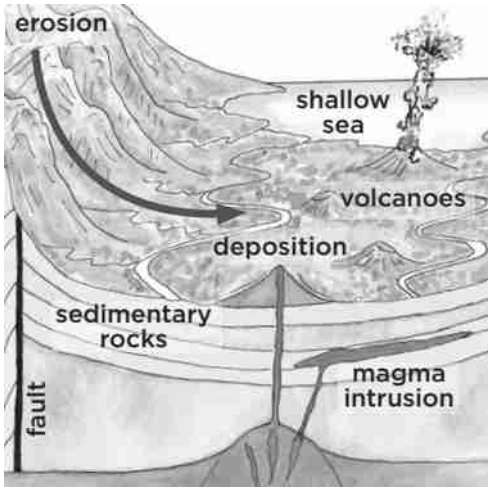
Explore Edinburgh's sedimentary and igneous rocks. Use the British Geological Survey's *Geology of Britain Viewer*, which can be used to find out what kind of rocks are found in your area.

If you have rock samples in school, compare the properties of sedimentary and igneous rocks. Because of their crystalline structure, igneous rocks such as dolerite or granite tend to be much tougher than sedimentary rocks such as sandstone and coal.

Look for examples of rocks used by people: most of Edinburgh's older buildings are made of a light-coloured local sandstone, quarried at 20 locations within the city. Later, red desert sandstone was brought from the south-west of Scotland and used in prominent building such as the Caledonian Hotel. Igneous rock, especially local dolerite, it often used in paved streets and kerb stones.

Evidence from the past

What do Edinburgh's rocks tell us about the past? Explore using the reconstruction of Central Scotland 350 million years ago. Sedimentary rocks contain fossils and evidence of the climate and environment when they were deposited. Igneous rocks record evidence of volcanic eruptions and magma intrusion in this area.



Use online resources to discover where Scotland was located when these rocks were being formed. What did the map of the world look like then?

Making Edinburgh's Landscape

How has this landscape been formed? Slowly, over hundreds of millions of years. During the Ice Age, Edinburgh has been scraped by ice sheets several times, moving slowly eastwards and moulding the landscape. Softer rock has been scraped away, forming crag and tail features such as Castle Rock and the Royal Mile.

Explore changing sea levels and the formation of raised beaches as the last ice sheet melted.

James Hutton (1726-1797) & the Rock Cycle

James Hutton was born in the city. He studied abroad, travelled widely and farmed in the Scottish Borders. A memorial garden at St John's Hill in Edinburgh marks the site of the house where he lived from 1770. Here, he wrote on a wide range of subjects and set out on expeditions around Scotland to sites such as Glen Tilt, Arran, and Siccar Point. Online resources help explore what Hutton saw in the rocks of Scotland, and how ideas developed in Edinburgh helped understand how the Earth works.

The Edinburgh Geological Society is one of the UK's foremost geological societies and aims to promote public interest in geology and advance geological knowledge. We organise varied programmes of excursions and lectures that bring together everyone from complete beginners to professional geologists interested in exploring the geology of Scotland and beyond. We publish the Edinburgh Geologist and excursion guides. Our geoconservation groups promote sites of local interest, publish leaflets and make sure that local geodiversity is understood and protected.

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