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Rocks and Stones  The geological map shows where the granite (red) is known to outcrop. The distinctive Mourne scenery is created by the underlying hard igneous and metamorphic rocks. A microscopic section of granite shows the different minerals. The layering effects of metamorphic rocks can be seen on the mountainside shown on the right hand photograph.

Landform  The shapes and forms of the mountains and rock outcrops reveal the impact of the ice age and years of weathering. The different rocks respond differently to the physical and chemical forces of rain, wind and ice. Theories about the tors have changed over the years. A research project is looking into what has shaped the outcrops.

Rivers  The source of the rivers Lagan, Annalong, Glen, Shimna, Bann, Kilkeel, Trassey and Bloody Bridge are in the higher mountains of the Mournes and Slieve Croob. The rivers make their way down the mountain sides, following wider glaciated valleys, opening into estuaries and the sea including Dundrum Bay, Carlingford Lough, the Irish Sea, Lough Neagh and Belfast Lough.

Reservoirs  How does water get to our taps? Several reservoirs have been created in the Mourne area to take advantage of the high rainfall in the higher areas. The first was the Silent Valley, later Ben Crom, Lough Island Reavy, Foffany and Spelga Dam were added and these supply water to most of County Down and to Belfast. The Silent Valley reservoir was a major engineering project. The Mourne Wall was built between 1904 and 1922 to demarcate the reservoir catchment. Water is piped to homes in County Down and East Belfast.

Quarrying  Granite is a beautiful and robust building stone and has been quarried for centuries. Stone was carried out from the quarries of the Mourne area by rail and boat to NW England and Wales. Millstones were crafted in the mountains. Mourne granite can be seen in a number of buildings in and around the Mournes to include Downpatrick Gaol and features in local towns such as steps in Kilkeel.
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| - Describe the Mourne mountain peaks - the shape, colour and form and how the weather changes their appearance.  
- Use the keywords to write a poem or a story about the mountains. | - Learn about local writers and poets who have written about the shape and form of the mountains.  
- Create your own legend about the Mournes.  
- Write a poem about the shapes and forms of the mountains and rock outcrops. |
| **Numeracy** | **Numeracy** |
| - From a photograph or by standing looking up at the Mourne mountains, compare the heights of the main Mourne mountain peaks – the highest, the lowest.  
- Compare the heights of the Mourne mountains with other mountains around the world.  
- Compare the weight or mass of a lump of granite with water or flour. | - Work out from a map the heights of the main peaks of the Mournes.  
- Compare and contrast the mountain sizes of the Mournes with other mountain ranges around the world.  
- Work out the amount of water in the Silent Valley.  
- Work out rainfall over a school year using a local weather station information. |
| **World Around Us** | **World Around Us** |
| - Make observations of the changing weather conditions and the mountains over different seasons - visibility, colours and cloud patterns.  
- Find out about the weather in the Mournes and contrast this with the coast nearby.  
- Explore some of the issues to do with water supply – who uses it, how it is piped to Belfast and water conservation issues in NI and other countries around the world. | - From the Granite Trail, find out where it was quarried, how it was transported and the buildings made from granite.  
- Visit Delamont Country Park to visit the Strangford Stone.  
- Follow two rivers from source to mouth – the Lagan and the Shimna.  
- Research issues to do with the supply of water to houses in Northern Ireland and the role of Silent Valley in this.  
- Study the way in which weathering has shaped the granite and how the rivers have shaped the boulders in the stream beds.  
- Collect and record weather from the Mournes and compare with somewhere else! |
| **Creativity & Expression** | **Creativity & Expression** |
| - Create your own collage of the Mournes  
- Paint your own rock section inspired by the microscopic section of granite.  
- Learn the Percy French song ‘The Mountains of Mourne’.  
- Make different sounds with different size rocks and stones and other materials collected in the Mournes. | - Look at a number of pictures created by local artists.  
- Design an art feature for a public space using granite stone.  
- Design a leaflet – like the granite trail – to describe the creation of the Mourne mountains.  
- Research and learn local songs about the Mournes or local set dances.  
- Use a range of materials and percussion to create the sounds of a storm in the Mountains or along the coast.  
- Create short stories and pictures told through sound - a walk up the mountains from a car park or by the River Shimna. Use visitor information supplied on Mournelive website. |
| **Information, Communication & Technology** | **Information, Communication & Technology** |
| - Use the suggested websites to find out more information about the Mournes area.  
- Create an exhibition with project work you have gathered | - Use recommended websites to find out more about the Mourne area and assist with all topics.  
- Produce your own webpage with information you have gathered. |
theme 1
Mountains of Mourne

Summary Information

Theme 1 focuses on how the Mountains of Mourne and Slieve Croob were formed. It touches on the varying underlying rocks, the way these have been weathered and shaped by ice, wind and rain, the range of mountains, the shape and form of the landscape and how this dramatic environment has inspired people over the centuries providing a home, a refuge, food and a place to celebrate. It includes a section of granite to show the beauty of granite in detail.

The Mourne mountains are relatively young mountains and made of granite - a coarse-grained igneous rock. The mountains were created 50 million years ago when a vast block of ancient shale subsided deep into the earth’s crust. Balloons of molten granite welled up in stages around the sides of the descending block and filled the ‘roof cavity’. The formation of the emergent mountains was complete and the mountains we know today were hidden beneath an overlying layer of shale. They were revealed when the softer covering rock was worn away by millions of years of weathering - the harder granite exposed in the mountains and softer rock or geological weaknesses in the valleys and coastal plain.

There are 12 major peaks ranging from 445m to 850m. Slieve Donard is the highest summit (850m) - named after Domangard - a holy man who built a prayer cell on the mountain’s summit. Slieve Binnian (747m) is called the mountain of little horns (peaks) Binnian has a long summit ridge with several tors (rocky outcrops) that resemble an array of little horns. To the west and north is the lower lying drumlin landscape - rounded hills shaped by glaciers. To the southeast the coastal plain with its sand and gravel deposits. The satellite picture highlights the pattern and shape of the landform and coastline.

Since the main mountain formation epoch, the landform has been subject to varying weathering forces resulting in the shape and appearance of the landscape today. During the Ice Ages, valleys were cut and rock and soil material was gouged by glaciers and deposited at the front and edges of the glaciers. Hare’s Gap is an impressive example of a mountain pass shaped by the passage of ice. The Cloughmore Stone in Rostrevor Forest is a ‘glacial erratic’ shifted by ice - miles from where it was lifted.

The climate of the Mournes is described as temperate, which means warm, damp summers and mild, wet winters. At the coast, in the shadow of the mountains, the weather is warmer, drier and sunnier. The rainfall is highest over the mountains - 2000mm compared with 750mm at sea level. There are 7 notable rivers and valleys - Annalong, Glen, Shimna, Bann, Kilkeel. Trassey and Bloody Bridge.

The Mourne mountains have long been associated with capturing and storing clean, drinking water for the Down and greater Belfast area. Silent Valley Reservoir, Ben Crom Reservoir, Foffany, Spelga Dam and Lough Island Reavy serve as ‘holding lakes’.

Grainite, sand and gravel have provided a resource over the centuries for building and industrial uses. A variety of differing wall styles contributes to the beauty of the landscape.

Resources and Websites

‘Mourne Country - Landscape and Life in South Down’ E Estyn Evans, 2005, Dundalk Press, Dundalk
‘Geology of Northern Ireland Our Natural Foundation’ Geological Survey Northern Ireland 2004
‘A Story through Time - The Formation of the Scenic Landscapes of Ireland (North)’. McKeever, P. J. 1999
Geological Survey of Northern Ireland, Belfast
www.downdc.gov.uk - to download leaflet on granite trail. Leaflet describes a few local historical features of granite quarrying in the mournes through a local trail.
www.mournelive.com - to download leaflet on granite trail. Leaflet describes a few local historical features of granite quarrying in the mournes through a local trail.
www.ehsni.gov.uk/natural/earth/geology.shtml - earth science information. information on rivers, water quality
www.bgs.ac.uk/home.html/- British Geological Survey - education resources teaching geology
www.ulstermuseum.org.uk - geology section with collections, talks and exhibitions
www.bbc.co.uk/northernireland/yourplaceandmine/down/A1068527.shtml
www.minersoc.org/pages/gallery - pictures of minerals
www.ehsni.gov.uk/natural/earth/geology.shtml - earth science information. information on rivers, water quality
www.bbc.co.uk/northernireland/yourplaceandmine/down/A1068527.shtml
www.mournelive.com - local information, an interactive map,
www.mournelive.com - pictures of minerals
www.english-nature.org.uk/science - useful resources and website links in teaching geology and geography subjects.

Refer to general leaflet on the Mournes AONB for car parks, facilities and interpretation panels.

This is Sheet 1 of a series of 7 themes - Mountains of Mourne, Evidence of the Past, Food from the Mournes, Living in the Mournes, Biodiversity in the Mournes, The Mourne Coast and The Mournes - A Place to Visit.

The education sheets should be used in conjunction with Mourne Heritage Trust Facts Sheets to be found in the education folder. Additional information about the Mourne Heritage Trust and it’s activities is available on the mournelive.com website. More copies of these sheets (and CDROM version) can be obtained from the Mourne Heritage Trust. This includes an electronic version for a classroom whiteboard education system.