

# Gortmaconnell

## Information Sheet



**Location:** GORTMACONNELL  
**Conservation designations:** ASSI  
**Grid reference:** H 12897 33991  
**Parking available:** Yes  
**Personnel to be contacted prior to visit:** None

### Useful equipment:

- Camera
- Metre stick
- Hand lens

### Relevance to national curriculum:

- Junior Cert Geography (The Earth's Surface)
- GCSE Geography (The Restless Earth)
- Leaving Cert Geography (Rock Cycle, Tectonic Cycle, Landform Development)
- AS/A2 Geography (Plate Tectonics, Climate Change – Past and Present)

**Rock types and geological processes observed:** limestone, chert, dolerite, sandstone  
**Geological structures:** bedding, dyke, ripple marks, pseudomorphs, contact metamorphism  
**Geomorphological features:** glacial valley, moraine

### Site specific hazards and risks:

- Uneven paths
- Livestock
- Deep water

### Mitigation measures:

- Consult weather forecast
- Outdoor learning qualification
- First aid kit
- Appropriate teacher / student ratio
- Clear instructions to be given to students
- Ensure students have appropriate clothing / footwear

**Did you know:** The main rock types in this area are limestone and sandstone, all of which formed during the Carboniferous period. The limestone formed first and similar rocks are found in Stonehammer Geopark in Canada, as well as in Kenozero National Park in Russia. The sandstones formed slightly later and similar rocks are found in Ballycastle in Co. Antrim. The Cuilcagh Dyke that occurs at Gortmaconnell formed around 60 million years ago as the result of the opening of the North Atlantic Ocean. These Earth movements also led to the formation of the Giant's Causeway in Co. Antrim, the flood basalts on the Isle of Mull, the Ardnamurchan ring complex and the layered intrusion of the Isle of Rum, all of which are in Scotland.

**Topics to cover before visit:** sedimentary rocks and processes, glacial processes and products, igneous rocks and processes, plate tectonics

**Keywords:** dyke, limestone, chert, sandstone, ripples, fault, bedding



Limestone



Sandstone



Dolerite

#### Description of limestone:

- Non-clastic rock
- Very fine-grained
- Medium grey
- Abundant fossils
- Reacts with HCl
- Layers (bedding)

#### Description of sandstone:

- Clastic rock
- Medium grained / fine grained
- Occasional small pebbles
- Pale orange / yellow
- No fossils
- No reaction with HCl
- Layers (bedding)

#### Description of dolerite:

- Medium-grained
- Interlocking crystals
- Dark grey / green (fresh surface)
- No fossils
- No reaction with HCl
- Dominated by plagioclase and pyroxene

#### Geological history:

The story at Gortmaconnell begins with the deposition of lime-rich mud and the remains of sea creatures on a tropical sea floor approximately 330 Ma. Although Ireland at that time was on or near to the equator, a glaciation in the southern hemisphere meant that global sea-level fell and as this occurred the environmental conditions changed to a tidal flat with semi-arid conditions, as seen by the algae rich limestones and ripple-marked sandstones. During the Palaeogene period, around 60Ma, crustal stretching and thinning as a result of the opening of the North Atlantic Ocean led to the intrusion of magma into a pre-existing weakness in the crust and formed the Cuilcagh Dyke, a vertical sheet of an igneous rock known as dolerite, that metamorphosed the rocks immediately adjacent to it. During Quaternary times, the entire area was ravaged by ice sheets sculpting the current landscapes, depositing erratics and moraines nearby, and stripping any surficial material off the limestone leading to the development of karst.