**Carboniferous and Ordovician Rocks**

Horizontal Carboniferous limestone beds on the top of the hill, with the darker more steeply dipping Ordovician rocks beneath. The Ordovician rocks are being quarried for aggregate for the building industry. There is about an 80 million year gap between the ages of the two sets of rocks, in which the older rocks were uplifted, deformed and eroded, before the younger rocks were laid down.

**Pen-y-Ghent**

Flat lying Carboniferous Limestone with layers of sandstone, shale and limestone, which have weathered differently to give the hill its distinct flat top and stepped sides. Ingleborough and Whernside have similar outlines.

**Drumlins**

Mounds of boulder clay (a mix of boulders, rock fragments and gravel in clay) deposited and shaped by the movement of glaciers. Drumlins can be up to 30m high and taper in the direction of movement of the ice.

**Sink holes**

Sink holes in the limestone can be seen from Ribblehead viaduct. They form where underground caves have collapsed. Many of the beck's which flow off Blea Moor and Whernside disappear underground into this vast cave system.

**Mallerstang**

Millstone Grit forms the flat tops of both Mallerstang Edge and Wild Boar Fell which bound the narrow valley at the head of the River Eden. Mallerstand Edge forms part of the Pennine watershed.

**Murton Pike**

The Pennine Fault separates the older rocks of the Pennines from the younger rocks of the Vale of Eden. The older rocks were pushed up by the fault and form the hills in the distance. They include Murton Pike, the conical shaped hill, which is made up of rocks of the Ordovician Skiddaw Group. The rocks of the Vale of Eden were dropped down by the fault and form the valley.

**Armathwaite Dyke**

The Armathwaite Dyke forms a natural weir in the River Eden. It is a long, thin, vertical intrusion of an igneous rock called dolerite. The dyke is 57 million years old and was formed as the Atlantic Ocean opened to the west. It can be traced for 400km from Mull through Cumbria to Durham.