



A Train Ride Geology Trail



The route of the railway is underlain by rocks of various ages (see GEOLOGICAL TIME SCALE text box). Kidderminster lies on Triassic rocks, Bewdley and Bridgnorth on Permian, and Arley, Highley and Hampton Loade on Carboniferous rocks. On your train journey look out for rock exposures by the track-side. All the rocks that you will see are sandstones and belong to a group known as sedimentary rocks.

USE YOUR SVR INFORMATION AND TIMETABLE LEAFLETS TO CHECK LOCATIONS ALONG THE ROUTE.

On the Kidderminster side of Bewdley tunnel the track runs through a cutting. The rock here is a hard sandstone with many pebbles and was formed during flash floods in the Triassic period. At this time England was part of a dry tropical landmass near the equator.



Sandstone with pebbles to be seen in the cutting

GEOLOGICAL TIME SCALE
(start of periods in millions of years ago).

Quaternary 1.6
Neogene 23
Paleogene 65
Cretaceous 142
Jurassic 205
Triassic 248
Permian 290
Carboniferous 354
Devonian 417
Silurian 443
Ordovician 495
Cambrian 545
Precambrian 4600

SEDIMENTARY ROCKS are made up of particles deposited in layers. They usually form beneath the sea, in lakes and rivers or in deserts. The particles may become cemented together by specks of mud or new minerals such as iron or calcium carbonate. Over millions of years the sediments become rock.

The red sandstones forming the backdrop to Bewdley Station are Permian in age. They are fossilised desert sand dunes. Rocks of the same age occur in Bridgnorth town where the soft nature of the rock has been exploited to create cave dwellings.

SANDSTONE.

As the land is eroded small particles of rock are carried away by wind and water to be deposited on river beds, in deserts or on the sea bed. Sand sized particles may accumulate to a thickness of many metres. Over time the sediment is buried, compressed and cemented into a hard rock called sandstone.



At Arley Station sandstones of a different age can be seen in the cuttings to the north and to the south of the station. They are grey in colour and were formed in river channels and deltas during the Carboniferous period. The rock removed when the cutting was made has been used to build the road bridge.



Arley Station looking towards Bewdley

Look out for trackside cliffs of similar sandstone between Arley and Hampton Loade.

At the Engine House, the back wall of the car park is made of an igneous rock called dolerite. These large blocks of a dark grey rock formed beneath volcanoes from molten rock known as magma, which was being forced upwards from deep within the Earth's crust. The boulders have come from the quarries on Clee Hill where these intrusions happened at the end of the Carboniferous period.

IGNEOUS ROCKS are formed when molten material (magma) rises from deep within the Earth. As it cools it solidifies to form igneous rock. When magma is forced into spaces in existing rocks it is known as an intrusive igneous rock. Examples are granite and dolerite. When the magma reaches the surface and forms a volcano it is known as an extrusive igneous rock. Basalt is an example.



Highley Station buildings are made from the local Carboniferous sandstone extracted from nearby quarries. If you alight from the train here take a careful look at the blocks of sandstone that make up the building. You will see lots of small glassy sand grains that are the mineral quartz.



QUARTZ or Silica is a mineral with the composition silicon dioxide. It occurs commonly in many different forms. It is an original constituent crystal in many igneous rocks. It forms the bulk of the grains in sandstones. It is also a prominent constituent of veins that cut through older rocks. It can be found as clear and coloured crystals such as rock crystal, amethyst and rose quartz. Silica occurs also as flint, agate and jasper.

Between Hampton Loade and Bridgnorth the red desert sandstone of Permian age, can easily be recognised alongside the track. Look out for the thin sloping layers called laminations. These were built up as part of a very large desert sand dune.



Bridgnorth Station building is made from a Triassic sandstone quarried in Shropshire. In places the grey rock shows laminations indicating that sand was deposited in a river channel. You may also be able to see where one set of laminations lies on top of another older set. This is known as cross bedding and indicates a change in direction of the water flowing in the river channels.



Bridgnorth Station buildings with examples of cross bedding.

We hope you have enjoyed this trail. To find out more about geology in the Abberley and Malvern Hills Geopark go to www.geopark.org.uk