Field trips and guided walks

These are arranged locally, often to examine rocks in disused or working quarries, or to appreciate landforms such as river terraces or dry valleys. We also visit interesting destinations beyond the county. Recently we have been to Charnwood Forest in Leicestershire to see some of the oldest fossils in the world, studied the rocks and scenery of the Mendip Hills, and looked at the dramatic sea cliffs along the Norfolk coast.

Lectures, workshops and social events

We arrange occasional lectures and workshops in order to learn more about certain aspects of geology and these are designed to have wide appeal. They may be combined with a visit to a museum that houses priceless collections of fossils and minerals, or perhaps to an institution such as the British Geological Survey in Nottinghamshire or the Geological Society in London.

Social events range from a Christmas gathering to barbecues or a quick pint in the pub after spending the day in the field.

Members are encouraged to take a turn on the Committee in order to promote the smooth running of the Group, but the focus of our effort is on Earth history rather than administration.

Educational support

We can provide educational support at various levels. This may include formal lessons or lectures for students or adults, field-based training or the provision of structured teaching materials for school children studying Science or Geography.

Our **Rock and Fossil Workshops** are particularly popular with youngsters who want to handle real specimens or make a model dinosaur. Adults may also find it interesting to have their geological queries answered.

BEDFORDSHIRE GEOLOGY GROUP

The Bedfordshire Geology Group was formed in 2004 by a group of enthusiastic amateur and professional geologists. We aim to encourage an understanding of the rocks and landforms of the county for the benefit of all. One of the main ways of doing this is by identifying and popularising Local Geological Sites which are of scientific and educational importance.

Members enjoy field trips, clearing overgrown sites, lectures, workshops and social events – all aimed at getting familiar with local rocks and fossils. We also arrange guided walks in order to share our interest in the varied scenery of Bedfordshire

We work closely with local companies, museums and county parks. Recently we have collaborated with The Wildlife Trust, The Greensand Trust, Natural England and English Heritage on different projects around the county.

Educational support for schools is arranged by request. This often involves classroom-based sessions that introduce pupils to exciting geological topics such as dinosaurs and volcanoes. Alternatively we can organise outdoor visits to help students learn more about their natural environment.

For more information, contact us through our website
or by email to
secretary@bedfordshiregeologygroup.org.uk

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www.bedfordshiregeologygroup.org.uk

BEDFORDSHIRE GEOLOGY GROUP

Encouraging an understanding of
the rocks and landforms of the county

BEDFORDSHIRE GEOLOGY GROUP
bringing landscape to life

This leaflet introduces you to some of the interesting aspects of Earth history that have shaped the county of Bedfordshire. It also describes the activities of the Bedfordshire Geology Group, an organisation that encourages an understanding of the local rocks and landforms.

Rocks, rocks and more rocks …

Bedfordshire's history spans hundred of millions of years. The evidence lies in the landscape features, the vegetation, the stone buildings and the industry of the area. All are linked by the rocks beneath the surface.

The oldest rocks formed nearly two hundred million years ago during the Jurassic period, when most of Europe was covered by shallow warm seas similar to those found today around the Caribbean Islands. The sea teemed with life and sediment accumulated on the sea floor, eventually becoming hardened to form limestones filled with fossils. These limestones are only seen today in the meandering valley of the Great Ouse, although they have been extensively quarried in the past and used as a local building stone. Changes in sea level towards the end of the Jurassic produced thick deposits of clay which contain the remains of shellfish and ammonites. Occasional skeletons of dinosaurs and crocodiles, along with plant material, were also washed in from nearby landmasses. These clays were deeply buried and compressed before being uplifted by Earth movements and returned to the land surface. There they were subjected to weathering and erosion, just as happens today. It is these Jurassic clays that were used for brick making in Marston Vale during the last century.

After many millions of years the ancestral landscape was again flooded by the sea during Cretaceous times. Thick piles of shifting sand were laid down in a shallow tidal seaway and gradually cemented together by iron-rich fluids to form reddish brown sandstones. These distinctive rocks are now seen along the Greensand Ridge where they have been exploited widely as a walling stone for medieval churches and locally as high-quality industrial sand.

As the sea level rose still higher, clays formed on top of the sands. These clays contain many fossil shellfish, some marine reptiles and occasional layers rich in phosphate. Today these rocks form the clay vale that extends from Billington to Wrestlingworth and they have locally been exploited for fertiliser and brick making.

The thickest rock sequence in the county is the Chalk, and it is made up of microscopically small plant and animal remains. Between about 100 and 65 million years ago their skeletons rained down on the sea floor, building up thick layers of pure white limestone. The Chalk also contains larger fossils such as shellfish, sea urchins and ammonites. Sponges periodically grew on the sea bed and provided silica after death from which the well-known flint nodules of the Upper Chalk were later formed. These very hard nodules are sometimes used as a walling stone or for decorative purposes in south Bedfordshire churches. The Chalk now forms the prominent escarpment and the rolling downs around Dunstable and Luton.

A landscape of ups and downs …

Our county is simply beautiful. The landscape in the south is dominated by relatively high Chalk hills and dry valleys, features that contrast strongly with the adjacent low-lying clay vale. Beyond the clay vale rises the Greensand Ridge with its characteristic sandy heathland and wooded hilltops. This lofty spine runs across the county from Potton to Leighton Buzzard and provides splendid view points. To the north lies Marston Vale, now recovering from the ravages of clay extraction through landscaping and planting.

Still further north the Jurassic clay is overlain by thick deposits that were laid down during the Ice Age; together they form rolling hills that change colour from shades of green to gold as the arable crops ripen.

Major rivers have cut through this landscape, depositing sand and gravel across their flood plains and leaving terraces along the valley sides as evidence of their former levels in the landscape. Many of these gravel deposits are removed to supply aggregate to the construction industry, and the restoration of such sites provides the scope for create new habitats and flood prevention schemes.

The rivers also provided a transport network and permanent water source for early settlers. As a result many towns and villages have developed along the river valleys, most notably Luton, Bedford and Leighton Buzzard.

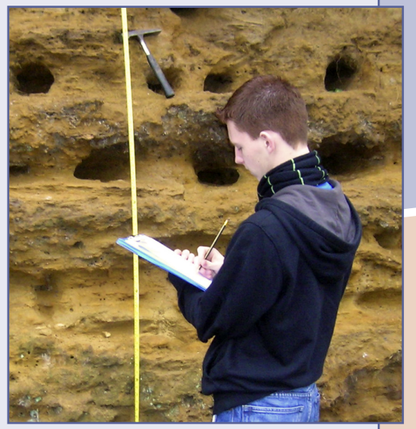
The Ice Age legacy …

Bedfordshire's landscape is influenced by the types of rock that lie close to the surface, and what has happened to those rocks over time. Over geological time Bedfordshire has experienced everything from hot and humid tropical climates to freezing cold conditions. It's been submerged beneath oceans and exposed to the elements on several occasions, but the present landscape has really developed in the last half million years, during the latter stages of the Ice Age.

About 450,000 years ago an enormous ice sheet covered most of Britain and extended across Bedfordshire towards the Thames. It ground its way across the old landscape, shifting lots of clay, sand and gravel in the process. As the climate gradually warmed, the ice sheet melted and major rivers began to develop. They cut their way through the loose clay and sand, carrying the material downstream and ultimately out to sea. In parts of the county such as Marston Vale, around Sandy, and in areas underlain by the Chalk, most of the Ice Age deposits have been removed in this way, leaving the much older underlying bedrock close to the surface. By contrast, Ice Age deposits still remain over the greater part of Bedfordshire although they are invariably hidden by soil and vegetation.

Local Geological Sites

We identify Local Geological Sites in order to demonstrate the variety of rocks and landforms that contribute to the character of the county. They are monitored on a regular basis and conserved as appropriate.



Volunteers help to clear scrub, expose rock faces, improve access and erect interpretation panels. Our network of Local Geological Sites is described more fully in a separate leaflet and on our website.