

Outdoor classroom

Quarries have been described as the "finest outdoor classrooms" because of the rich opportunities they offer for out-of-the-classroom learning. The industry is experienced in hosting school visits for a variety of age groups. Children are usually fascinated to discover where the materials for their schools and homes come from, and older pupils have the opportunity for geography fieldwork. Although most can be taught from the classroom, a number of our educational units can be enhanced by a visit to a real quarry.

With 1,300 quarries across the UK, there is usually one no more than 20 miles from every school. Our website offers a database of sites suitable for visits and help in organising your trip, including health and safety advice.



An essential industry

Many people have an image of quarries as simply holes in the ground. The reality is that, by providing the materials we need for our homes, hospitals and schools, quarries are essential contributors to our lives. Every year, a typical family indirectly demands a full lorry load of aggregate. Many products we take for granted – from paper to glass, cosmetics to toothpaste – are manufactured using materials derived from quarrying.

The construction industry, which contributes around ten per cent of the nation's gross domestic product, is totally reliant on quarrying. There are around 1,300 quarries in the UK producing £3 billion worth of products a year.

They provide some 40,000 jobs, many in rural areas where employment can be scarce, and support a similar number indirectly through the industry's spending on services. Career opportunities are increasingly diverse – from geologists, to laboratory technicians and archaeologists to transport managers. A careers initiative has been launched to encourage more young people into key roles.



Facts and figures

- In the UK, we each "consume" four tonnes of aggregates a year
- An average house needs 60 tonnes of aggregates
- Over 15 per cent of the UK's sand and gravel needs come from the seabed
- Britain tops the European league for aggregates recycling
- The industry provides some 40,000 jobs

Sensitive neighbours

By the very nature of its operations, quarrying has environmental implications. Recognising this, the UK industry adopts a responsible approach to its work and a considerate attitude to its neighbours. It also works hard towards the ultimate goal of sustainability by minimising the call on primary aggregates and investing heavily in facilities which will maximise the proportion of recycled and secondary aggregates.

Most crushed rock is used within 30 miles of where it is extracted and is, therefore, a local resource used to meet local needs. It is often delivered by lorry, although trains and barges are used wherever possible to reduce the impact on the environment and local communities.

Quarrying: a whirlwind tour

How we quarry

Before quarrying can begin, plans are subject to stringent environmental impact assessments. A restoration plan is also agreed for the quarry post-extraction (see *Borrowed land* below).

There are two main types of land quarries – rock, and sand and gravel. The former tend to be longer-term, deeper and dug on several different levels or “benches”. Rock is blasted from the ground using carefully controlled explosions, and is then taken to a crusher, where it is broken down into smaller pieces and separated into different sizes.

Sand and gravel quarries are usually much shorter-term, shallower and worked and restored in progressive phases. Once the topsoil has been removed, the aggregate is dug from the ground and taken to a processing plant where the clay and silt is removed and the sand and gravel is separated into different grades.

Crushed rock or sand and gravel are mixed with cement to make ready-mixed concrete, and with bitumen to make asphalt for the surfaces of our roads.

Learn more about quarrying for rock in our *Virtual Quarry* or visit the *Rock Cinema* to see how we extract sand and gravel.

Borrowed land

Restoration of land that has been quarried is one of the great skills of the modern quarrying industry.

Extraction of minerals is a temporary land use that may last no longer than ten years for sand and gravel. Restoration is usually phased through the life of a site and may involve a return to agriculture. It may alternatively offer a one-off opportunity for change to a new use that benefits wildlife and the community.

More than 700 of the UK’s Sites of Special Scientific Interest have their origins in quarrying – and many are still maintained by quarrying companies.

CASE STUDY: RESTORED FOR NATURE AND PEOPLE

Lackford Lakes near Bury St Edmunds in Suffolk was once a three-and-a-half-million tonne sand and gravel deposit and a major contributor to the built environment of west Suffolk. Restoration was carried out progressively as extraction took place and the resulting nature reserve, complete with visitor centre, public access and habitat trails is now a hugely popular location for schools. This is encouraged by an extensive education programme covering not just wildlife but archaeology, palaeontology and geology.



Under the sea

At a time when land-based quarrying is under increasing environmental pressure, a significant proportion of Britain’s need for aggregates is also satisfied from the seabed using dredgers which operate in strictly licensed areas. The aggregate is discharged at marine wharves for processing. Every application to dredge must include a wide variety of environmental studies and monitoring takes place throughout and after extraction.

Watch video clips in our *Rock Cinema* to learn more.

Feedback please

Feedback on your experiences using the *Virtual Quarry* education units would be appreciated so that we can ensure they meet the needs of teachers. By listening to your views and comments, we can continue to improve the resource. Please visit the [Contact page](#) of this website.