



SHAPE YOUR WORLD

Welcome to Minerals Matter

Welcome to the Minerals Matter
Education, Careers & Industry
Engagement Pack.



This pack has been designed to support:

- Teachers
- Careers leaders
- STEM coordinators
- Parents and carers
- Schools, colleges and training providers across the UK

Minerals Matter provides curriculum-linked resources, industry engagement opportunities, careers education support, and workplace experiences to help young people explore the minerals and mining sector.

The materials within this pack can support:

- Classroom learning
- STEM enrichment
- Careers education
- Assemblies and employer encounters
- Site visits and workplace experiences

Suitable for:

- KS2–KS5
- FE colleges
- Careers programmes and enrichment activities

**This resource has been kindly sponsored by
The Mining Association of the UK (MAUK).**

MAUK shares knowledge and promotes best practice in health and safety, environmental management, and social responsibility within the mining sector. The Association also supports education and skills development by working with schools, colleges, universities, and training providers to inspire future talent and highlight careers in modern mining and minerals industries.



MAUK

The Mining Association of the United Kingdom

www.mauk.org.uk



How to Get Involved

Raising awareness of the minerals and mining sector is essential to help young people understand how the industry supports everyday life, infrastructure, sustainability, and the transition to net zero.

Many students are unaware of the wide range of careers and opportunities available within the sector, making early engagement and employer interaction increasingly important.

For Teachers and Schools

You can:

- Book classroom talks
- Arrange site visits
- Access teaching resources
- Participate in STEM enrichment activities
- Request careers engagement support

For Careers Leaders

You can:

- Integrate minerals careers into careers programmes
- Access Labour Market Information
- Support Gatsby Benchmark delivery
- Connect with employers and ambassadors

For Parents and Carers

You can:

- Encourage awareness of STEM careers
- Explore vocational and technical pathways
- Support understanding of sustainable industries



To access and explore ways to get involved with Minerals Matter, and to find resources to use in your classroom, or at home, please visit:

www.minerals-matter.co.uk



Contact us:

 info@minerals-matter.co.uk  [@_mineralmatter_](https://www.tiktok.com/@_mineralmatter_)

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Who is Minerals Matter?

Minerals Matter is an initiative of The Mineral Products Qualifications Council, a not-for-profit organisation, driven by industry to address skills shortages, diversity and the lack of future talent entering the minerals and mining sectors.



It is a UK-wide industry and education programme designed to raise awareness of the minerals sector and its critical role in everyday life, the economy, and the transition to a low-carbon future.

Our purpose

- **To educate** young people about the importance of minerals
- **To facilitate** links between the education system and the minerals, extractives and mining sector
- **To support** teachers with curriculum-based resources and engagement opportunities
- **To inspire** future careers in the minerals, extractives and mining sector

Who we work with

- UK minerals companies (aggregates, quarrying, industrial and critical minerals)
- Industry bodies in the mining and quarrying sector
- Schools, colleges, and training providers across the UK
- Careers networks and STEM organisations

What we offer

- Curriculum-aligned teaching resources (KS2–KS5)
- Careers engagement (talks, workshops, site visits)
- Digital content (videos, digital learning resources, careers broadcasts)
- Case Studies (apprenticeships, early-career and experienced)

Myth busting the sector

Myth

Mining and quarrying are outdated industries

Careers are only manual or site-based

Mining and quarrying permanently damages the environment

The industry has limited career progression

Reality

Modern operations use advanced technology, automation and digital systems and are key to driving the UK's net-zero ambitions

Roles include engineering, science, finance, IT, marketing and environmental management

Many sites are restored into nature reserves, parks, leisure facilities and habitats

There are opportunities for apprenticeships, higher education, leadership and international careers

Our Industry Ambassador Network



Minerals Matter is supported by a national network of industry ambassadors who bring real-world insight directly into schools and colleges.

Delivered through STEM Learning, training and support is available to enable Ambassadors to confidently deliver a range of activities to young people, including career talks and hosting site visits.

Our ambassadors are:

- Professionals working across the minerals sector in a variety of different roles (e.g. quarry managers, engineers, geologists, environmental specialists, operations managers, surveyors, marketers and administrators)
- Based across all UK regions
- Supported to engage with young people in an educational setting

What they do:

- Deliver classroom talks and presentations
- Support careers events and STEM days
- Host and support site visits
- Provide real-life case studies and career journeys

Why this matters:

- Gives students direct exposure to industry professionals
- Helps challenge misconceptions about the sector
- Makes learning more relevant and engaging

Get in touch with your local ambassadors:



Get in touch with Minerals Matter:

info@minerals-matter.co.uk



Request a visit through the STEM Learning Platform:

www.stem.org.uk/stem-ambassadors/request-stem-ambassador



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Minerals are essential to everyday life

The minerals industry at a glance



400m metric tonnes produced annually



£5.8bn added to the economy



81K people directly employed



2K active sites & plants



28% total market is recycled aggregates



5K hectares of restored sites for public use



4m+ ppl worldwide in quarrying

The minerals industry plays a vital part in our everyday lives. Mineral products are all around you. From your smart phone and TV screen, the crockery and cutlery you use daily, wind turbines and solar panels, to the roads, cars, electric vehicles, trains, buildings and built environment, they're everywhere.

- **Construction:** homes, schools, hospitals
- **Transport:** roads, railways, airports
- **Technology:** phones, batteries
- **Energy transition:** wind turbines, solar panels, electric vehicles

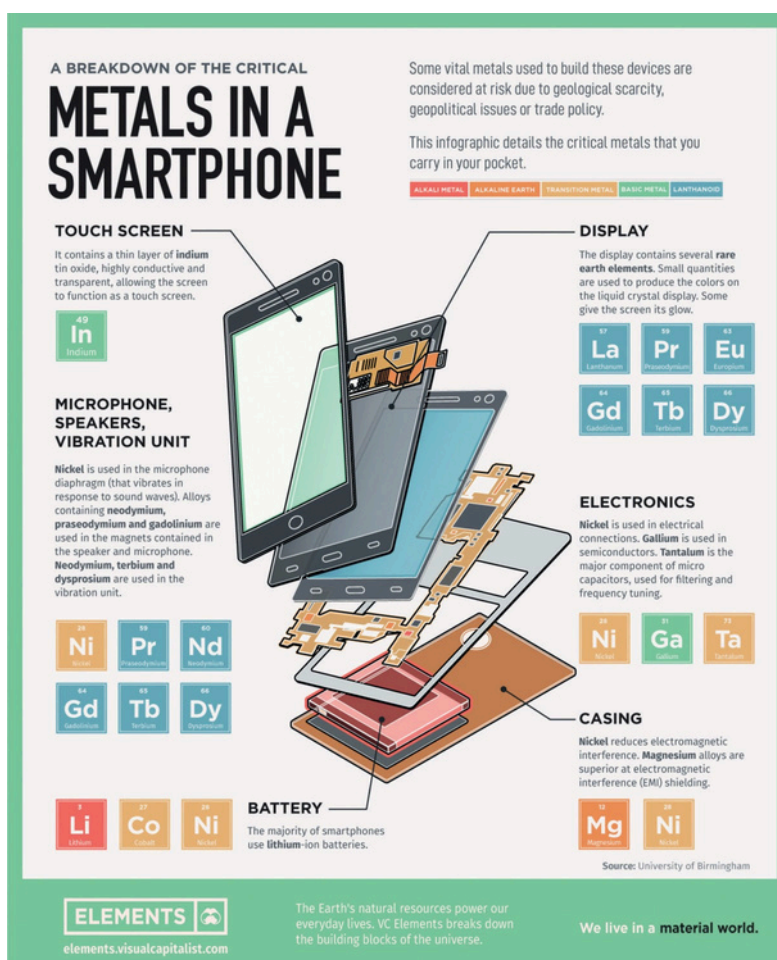


Image from Visual Capitalist.

What are critical minerals?

Find out more from UK Critical Minerals:



What are essential materials?

Find out more from the Mineral Products Association:



Why does the industry matter?

Economic importance

The UK minerals industry is a vital foundation of the economy, supporting national infrastructure, construction, manufacturing, energy, and regional employment across the country.

- The UK minerals industry supplies billions of tonnes of materials annually
- Supports thousands of jobs across all regions (urban and rural)
- Underpins sectors like construction, infrastructure, technology and manufacturing

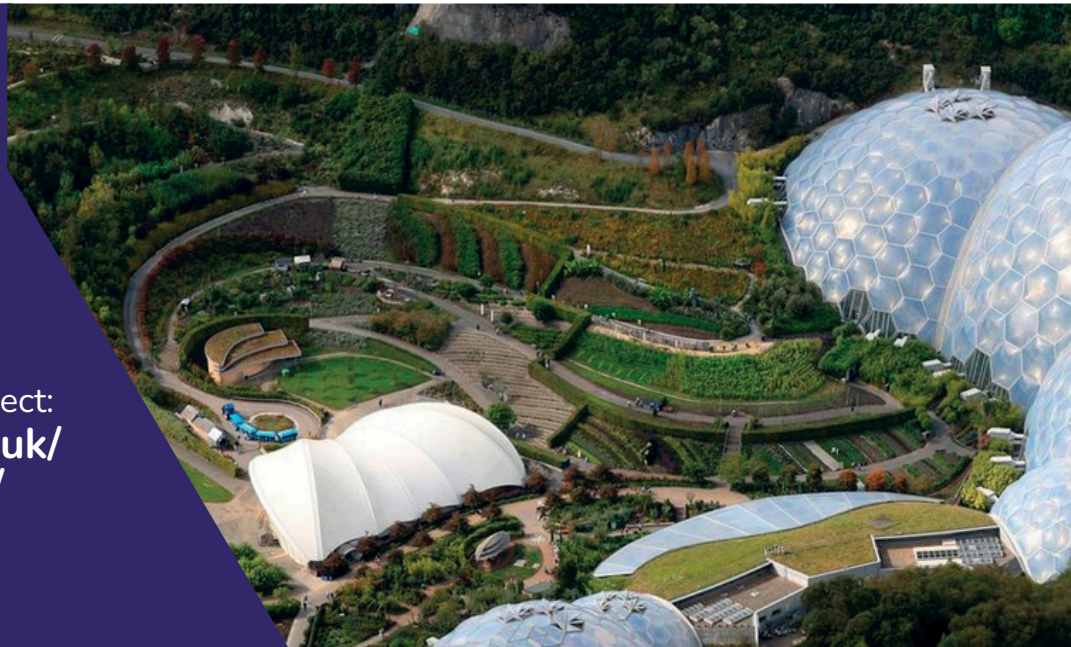
Sustainability and environment

Climate change, sustainability and biodiversity are a big part of the world we live in. The industry is actively working to reduce waste, restore sites and develop solutions to these global challenges, including:

- Land restoration (e.g. quarries turned into nature reserves)
- Biodiversity net gain
- Reducing carbon emissions
- Supporting UK net zero targets



Find out more about the industry and what to expect:
[minerals-matter.co.uk/what-can-i-expect /](https://minerals-matter.co.uk/what-can-i-expect/)



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How the industry links to the curriculum

The minerals and mining industry aligns across multiple curriculum areas and key stages, including:

Topic	Subject	Key Stage
Rocks and Minerals	Science	KS2 - KS5
Sustainability and resources	Geography	KS2 - KS5
Materials and manufacturing	Design & Technology	KS2 - KS5
Renewable energy	Science / Geography	KS2 - KS5
Environmental management	Geography / Environmental Science	KS2 - KS5

As well as the direct curriculum links highlighted above, the minerals and mining sector can also support wider learning across subjects and themes including sustainability, climate change, industrial history, geography, engineering, innovation, and problem-solving.

Key areas of demand include:

- Engineering and maintenance
- Environmental management and sustainability
- Digital and technical skills
- Leadership and operations
- Geology and geoscience
- Surveying and planning
- Health & safety
- STEM-related disciplines

Supporting Gatsby Benchmarks & Modern Work Experience

Engaging with Minerals Matter is an effective way to support several Gatsby Benchmarks, including:

- **Benchmark 2** – Labour Market Information
- **Benchmark 4** – Linking Curriculum Learning to Careers
- **Benchmark 5** – Encounters with Employers and Employees
- **Benchmark 6** – Experiences of Workplaces

We also work closely with industry partners to highlight changes to work experience programmes and encourage employers to explore more flexible and innovative approaches to providing meaningful workplace experiences.

Site Visits & Workplace Experiences

Minerals Matter works with employers and education centres across the UK to support safe, engaging and curriculum-linked visits for schools and colleges.

Support may include:

- Guided educational tours
- PPE guidance
- Careers talks
- Curriculum-linked activities
- Workplace insight sessions (including CPD)



Careers and pathways

With more than 81,000 people working in the mineral products industry in the UK, across multiple sites and job roles, it's actually a more varied sector to work in than you might think.

This is a collaborative and inclusive industry offering opportunities for teamwork, qualifications, secondments, and travel.

Careers span engineering, geology, environmental science, technology, and sustainable resource management, alongside roles in HR, administration, digital & IT, marketing, finance, planning, and management.

Academic route

GCSEs → A-levels → university degrees

Vocational route

GCSEs → T Levels / BTECs → employment or higher education

Apprenticeships

Level 2–6

As the UK's largest manufacturing industry, we are invested in helping you make the best of your career.

Employers and industry bodies provide personal development and career support to help you progress and grow.



Find out more:
[minerals-matter.co.uk/
starting-my-career/](https://minerals-matter.co.uk/starting-my-career/)

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Explore careers in the minerals industry

In such a varied industry, there are hundreds of different job roles to choose from. Whether you want to be office-based, out on site or a job that takes you to different places, there will be something to suit your interests and aspirations.



Hazen Bowskill
Operations Manager, Tarmac

Hazen has a broad experience across hard rock, sand and gravel, engineering, and asphalt production. As Operations Manager, he oversees two hard rock quarries and a Middlesbrough wharf supplied by North Sea dredgers, bringing extensive operational and technical expertise to the role.

“I’ve been in the industry for 24 years and have worked across so many areas. That’s one of the biggest strengths of this sector – you’re constantly learning and developing.

Claudia Malam

Community Engagement and Education Officer, Geothermal Engineering Ltd

Claudia promotes geothermal energy and geoscience through outreach, workshops, and careers events. With a background in geology and mining environmental consultancy, she combines technical expertise with a passion for education, helping young people and local communities explore opportunities in the renewable energy and minerals sectors.

“I love connecting with young people and helping them see the exciting opportunities that exist in geoscience, mining, and renewable energy.





Bethany Cleaver

**Chartered Minerals Surveyor,
SLR Consulting**

Bethany works across mineral estates, planning, compliance, and land management. Her role combines technical surveying expertise with stakeholder engagement, while also promoting careers in the minerals sector through outreach and education initiatives.

“I’ve always been fascinated by the Earth - how it works, what’s beneath our feet, and how we use those resources. We’ll always need minerals - especially those vital to renewable technologies - but it’s our responsibility to access them ethically and sustainably.”

Louis Robson

**Senior Apprenticeship Surveyor,
ICL Group (Boulby Mine)**

Louis works in a hands-on operational role, supporting the safe and efficient running of quarry and materials operations. His role involves working closely with site teams, maintaining high safety standards, and helping ensure essential materials are produced and supplied for construction and infrastructure projects.

“I enjoy being part of an industry that keeps things moving - every day is different, and you’re always learning new skills.”



Find out about more roles in the sector:
**[minerals-matter.co.uk/
job-profiles/](https://minerals-matter.co.uk/job-profiles/)**

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IT'S NOT JUST ABOUT DIGGING

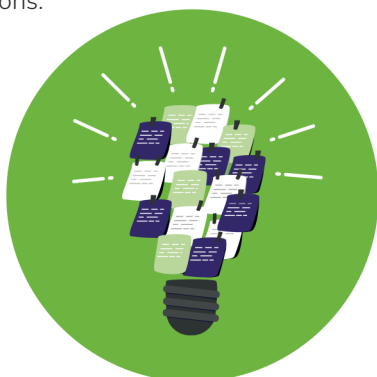


The quarrying, mining and mineral products industry is the UK's largest manufacturing sector. It's the bedrock of construction and the built environment, from extracting and processing minerals to making building materials. It also supports many important sectors like agriculture, automotive, pharmaceuticals and technology.

A diverse industry means hundreds of job opportunities and places to work. Whatever your interests, be part of an industry that's essential to everyday lives.

Make a difference

Help tackle some of the world's biggest challenges. You could be developing products that adapt to changing climate conditions, finding ways to reduce the use of new materials from the ground, or finding solutions to reach net zero carbon emissions.



Support a wide range of industries

Mineral products are used everywhere from food production to pharmaceuticals, technology to automation. The biggest user is the construction industry – minerals are used in products like glass, steel, bricks, concrete and asphalt.



Earn great money

On average, higher apprentices earn almost double the national minimum apprentice wage. The average starting salary for people in the industry is higher than for other graduates.



Travel the globe

This is a global industry and the skills you develop will be in demand worldwide. Work in dynamic teams with people all over the world.



Be in demand

People in the quarrying and mineral products industry are needed now and in the future. The industry has existed for centuries and will continue to be

in demand because it provides products to the rest of the economy. The sector provides a career for life and many opportunities that you can progress through.



Gain respect

Gain qualifications and progress your career. With an emphasis on personal development, this industry will help you gain professional recognition for your achievements.

Diverse roles and inclusive opportunities

Whether you want to work mainly outside or within an office environment, work with people or using the latest in technology, there will be something that suits your skill set.



Shape your world

Be a part of the industry that is shaping your world now and in the future. Whether through producing materials used all around us every day, restoring sites and preserving biodiversity or finding solutions to address global challenges, your contribution matters.



Choose your own route

Go to college, do an apprenticeship, take a T level, get a university degree, switch careers or combine different routes.

Find out more:

www.minerals-matter.co.uk





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Key industry terms

Aggregate

Sand, gravel, or crushed rock used in construction, such as concrete and roads.

Asphalt

A mixture of aggregates and bitumen used to surface roads.

Ballast

Coarse stone used to support railway tracks.

Bedrock

The solid rock beneath soil and loose material at the Earth's surface.

Blasting

The controlled use of explosives to break rock for extraction.

Cement

A powder that binds materials together when mixed with water.

Circular economy

An approach that keeps materials and products in use for as long as possible through reuse, repair and recycling.

Clay

A fine-grained natural material used in bricks, ceramics and tiles.

Concrete

A mixture of cement, aggregates and water used in construction.

Critical minerals

Minerals that are economically important and face a risk of supply disruption.

Critical Raw Materials (CRMs)

Materials considered essential to the economy and at risk of supply shortages.

Crushed rock

Rock that has been mechanically broken into smaller pieces for use in construction.

Crushing

Breaking down large rocks into smaller pieces for use.

Digital modelling

Using computer-based models or simulations to understand, plan and manage projects.

Dimension stone

Natural stone cut to specific sizes and shapes for building or decorative purposes.

Environmental impact

The effect an activity, product or project has on the natural environment.

Energy transition

The shift from fossil fuels towards lower-carbon and renewable energy systems.

Extraction

The process of removing minerals or raw materials from the Earth.

Geology

The scientific study of the Earth, including its rocks, minerals, structure and history.

Geotechnical engineering

Engineering that examines how soil, rock and other earth materials behave in construction.

GIS (Geographic Information Systems)

Technology used to collect, map, analyse and display geographical data.

Igneous rock

Rock formed when molten material, such as magma or lava, cools and solidifies. Examples include granite and basalt.

Industrial minerals

Minerals used in manufacturing, construction and industry.

Land restoration

The process of returning land to a natural, productive or usable state after extraction or industrial activity.

Metamorphic rock

Rock changed by heat, pressure or chemical processes. Examples include marble and slate.

Mineral

A naturally occurring substance with a specific chemical composition and crystal structure.

Mineral resources

Naturally occurring materials in the Earth that may be extracted and used.

Open-pit mining

A method of extracting minerals from a large open excavation at the Earth's surface.

Ore

Rock containing enough valuable minerals or metals to make extraction economically worthwhile.

Platinum Group Metals (PGMs)

A group of metals with specialist properties used in catalysts, electronics, hydrogen technologies and other applications.

Primary aggregates

Aggregates extracted directly from natural sources such as quarries, sand and gravel pits.

Processing plant

A facility where extracted or recycled materials are cleaned, crushed, sorted, separated or otherwise prepared for use.

Quarry

A surface site where materials such as stone, sand and gravel are extracted.

Raw materials

Natural or processed materials used to manufacture products or construct buildings and infrastructure.

Recycled aggregates

Aggregates recovered and reused from construction, demolition and other waste materials.

Rehabilitation

The process of improving and managing land following extraction or industrial use.

Remote sensing

Collecting information about an area without direct physical contact, using technologies such as satellites, aircraft or drones.

Resource efficiency

Using materials and resources effectively while minimising waste and environmental impacts.

Rock cycle

The natural process through which rocks are formed, broken down and transformed into different types of rock over geological time.

Rare earth elements (REEs)

A group of 17 elements used in technologies including electronics, magnets, batteries and renewable energy systems.

Screening

Sorting materials into different sizes using equipment such as mesh or vibrating screens.

Secondary aggregates

Aggregates produced as by-products of other industrial processes.

Sedimentary rock

Rock formed from layers of sediment that become compacted and cemented over time. Examples include sandstone and limestone.

Security of supply

Ensuring that essential minerals and materials remain available when and where they are needed.

Supply chain

The network of processes and organisations involved in moving materials from extraction through processing and manufacturing to their final use.

Surveying

Measuring and mapping land, structures and features for planning, construction and development.

Sustainable development

Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Strategic minerals

Minerals considered particularly important for technologies, industry, defence or the energy transition.



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