34: The Critical Raw Materials Shaping Our Future

17 June 2026 – 13 April 2027

Oxford University Museum of Natural History

The hidden materials behind everyday life are front and centre in the latest special exhibition at Oxford University Museum of Natural History (OUMNH), opening on Wednesday 17 June.

34: The Critical Raw Materials Shaping Our Future, reveals the hidden powers and global stories behind the 34 raw materials deemed essential to the UK's future. Through case studies, historical and modern artefacts, and interactive installations, the free exhibition will open the eyes of visitors to the geopolitics, complex supply chains and human perspectives behind the minerals that make our modern lives possible. A lively programme of public events and workshops will invite visitors and communities to engage more deeply with the exhibition's themes.

34 is a collaboration between OUMNH, Oxford University's Department of Earth Sciences, and Oxford EARTH – a transdisciplinary research programme addressing the resourcing challenge we face to meet future demand equitably and sustainably.

Critical materials – why now?

From the smartphones in our pockets to the imaging equipment in our hospitals, modern life is built on materials taken from the Earth's crust.

Critical materials are those which are essential for a country's economy or national security, but which may not have a reliable supply chain. At a time of rising geopolitical tensions and growing competition over the resources needed for clean energy, modern technology and defence, there has never been a more timely moment to shine a spotlight on them.

At the heart of the exhibition are 34 raw materials officially designated as 'critical' to UK development by researchers and the Government. These include familiar materials such as iron, aluminium, lithium, cobalt, titanium, helium and rare earth elements, alongside less well-known but equally essential substances.

As governments seek to decarbonise energy systems, electrify transport and expand digital infrastructure, demand for these materials is increasing at unprecedented speed. For instance, the International Energy Agency predicts that, globally, we could need around five times as much lithium by 2040, and twice as much graphite and nickel. Decisions made now about mining, recycling, product design and consumption will have long-lasting consequences.

By bringing together geological specimens and industrial products, historic objects, contemporary technologies and cutting-edge scientific research, *34* asks how we can meet rising demand for critical raw materials without further endangering the ecosystems and communities that call Earth home.

Dr Gavin Svenson (Director of OUMNH) said: *"Our upcoming exhibition, 34, will not only deepen public understanding of one of today's most urgent global challenges, but also reflects our ongoing commitment to present topical, relevant content that helps audiences understand how the natural world shapes and connects with our daily lives."*

From deep time to cutting-edge research

34 takes a long view of humanity's relationship with the Earth, starting with a 40,000-year-old iron-rich ochre from Ngwenya Mine in present-day southern Africa, which marks one of the earliest known moments when humans deliberately extracted material from beneath the ground. The story continues with case studies ranging from 19th century gold rushes in North America to present-day lithium extraction in Chile's Atacama Desert. These demonstrate how the pursuit of raw materials has repeatedly transformed landscapes, displaced communities and driven economic booms and busts.

The exhibition is structured around familiar environments - kitchens, hospitals, streets, renewable energy production in our countryside and the aerospace industry - connecting our everyday experiences with the places and practices that provide our raw materials. All 34 critical raw materials, and a few more besides, are placed directly alongside the technologies and products that drive demand. Aerospace components, wind-turbine magnet replicas, battery modules and medical devices sit next to the rocks that made them possible.

Extracting these critical materials, however, can be associated with dangerous working conditions and environmental damage. *34* showcases the cutting-edge research from Oxford University and the wider scientific community exploring how we can meet rising demand for critical raw materials without further endangering the ecosystems and communities that call Earth home. These include both alternative extraction methods with reduced environmental impacts and approaches to reduce our reliance on high-risk materials, for instance through recycling, repair and substitution.

For instance, the extraction of the lithium essential for rechargeable batteries places intense pressure on water supplies and fragile ecosystems. New research led by the Oxford EARTH programme is investigating whether mining geothermal brine in places such as New Zealand and Montserrat could enable a more environmentally sustainable supply.

Professor Mike Kendall (Oxford EARTH Programme Director) said: *"Achieving net zero and a sustainably secure future will place unprecedented demands on natural resources, requiring innovative ways to discover, refine and reuse critical materials - bringing both major challenges and unique opportunities."*

Digital and interactives; art and reflection

Interactive digital installations allow visitors to dismantle everyday objects virtually, revealing the dozens of elements inside, and to watch the volcanic processes that put mineral-rich rocks and liquids within our grasp. Other interactives invite visitors to hear directly from researchers, industry workers, policymakers, activists and community members involved in extraction.

A tactile, hands-on section enables visitors to physically trace iron's journey from ore through smelting and refinement to alloyed products, with the opportunity to handle raw minerals, ingots, pellets and finished objects.

A vital part of the exhibition, a specially-commissioned artwork by Katie Surridge, responds to the history and scale of human raw material extraction and use. Developed in dialogue with Oxford University researchers, the commission will offer a space for reflection on landscapes shaped by extraction within the exhibition. Alongside this, a collaboration with the Oxford Flash Fiction Prize will give voice to aspiring and established authors responding creatively to society's relationship with critical raw materials.

The exhibition is supported by a varied programme of events, from talks and tours, to late-night openings, family activities, performances and hands-on workshops. Designed for audiences of all

ages, the programme brings together researchers, artists and communities to explore the exhibition's themes in different ways.

The exhibition is free to visit and can be accessed during the Museum's normal opening hours. For more information, head to www.oumnh.ox.ac.uk, follow @morethanadodo on social media and read the Museum's blog at www.morethanadodo.com

NOTES FOR EDITORS

For media enquiries and to request interviews, contact Caroline Wood: caroline.wood@admin.ox.ac.uk, 01865 280534

Journalists are invited to a special press preview of the Exhibition on Wednesday 17 June 2026, 5 – 6 pm. You will have the opportunity to see the exhibition, hear from Dr Gavin Svenson, Director of OUMNH, and interview featured Earth Sciences researchers. Contact Caroline Wood to RSVP: caroline.wood@admin.ox.ac.uk, 01865 280534

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About Oxford University Museum of Natural History
Founded in 1860 as the centre for scientific study at the University of Oxford, the Museum now holds the University's internationally significant collections of entomological, geological and zoological specimens. Housed in a stunning Pre-Raphaelite-inspired example of neo-Gothic architecture, the Museum's growing collections underpin a broad programme of natural environment research, teaching and public engagement. In 2015, the Museum was a Finalist in the Art Fund Prize for 'Museum of the Year'. In 2016, it won the top accolade, 'Best of the Best', in the Museums + Heritage Awards, and in 2022, the *Meat the Future* exhibition won the Museum + Heritage 'Partnership of the Year Award'.

About Oxford EARTH

Oxford EARTH (Equitable Access to Sustainable Resources for a Thriving Habitat) is the University of Oxford's pioneering research programme dedicated to tackling the challenges of sustainable and equitable natural resource management and innovation. The transition to net zero will place unprecedented demand on critical raw materials, and business as usual approaches cannot provide the solutions we need. A new paradigm is required. By uniting researchers from nine departments and two divisions, Oxford EARTH positions the University as a global leader in natural resource recovery and innovation, addressing ecological, economic and social dimensions through a holistic approach.

About the University of Oxford

Oxford University has been placed number 1 in the Times Higher Education World University Rankings for the tenth year running, and number 3 in the QS World Rankings 2024. At the heart of this success are the twin-pillars of our ground-breaking research and innovation and our distinctive educational offer.

Oxford is world-famous for research and teaching excellence and home to some of the most talented people from across the globe. Our work helps the lives of millions, solving real-world

problems through a huge network of partnerships and collaborations. The breadth and interdisciplinary nature of our research alongside our personalised approach to teaching sparks imaginative and inventive insights and solutions.

Through its research commercialisation arm, Oxford University Innovation, Oxford is the highest university patent filer in the UK and is ranked first in the UK for university spinouts, having created more than 300 new companies since 1988. Over a third of these companies have been created in the past five years. The university is a catalyst for prosperity in Oxfordshire and the United Kingdom, contributing around £16.9 billion to the UK economy in 2021/22, and supports more than 90,400 full time jobs.