

Mining Polyhedron

Topic: Mining

Background Information:

The mining process occurs through a series of steps. Refer to the mining process information on the Alcoa website – www.alcoa.com.au

You Will Need:

- Graph Paper
- Thin card
- Paper
- Pencils

What You Need To Do:

- List the mining process steps.
- Use graph paper to design a polyhedron with the number of sides equal to the number of steps listed for the mining process.
- Make the polyhedron out of the card.
- Write/ draw the various stages of mining and paste them onto the polyhedron.

Extension/Alternatives:

The idea of a polyhedron for this activity was based on a similar activity relating to jarrah dieback, developed by the Armadale Primary School in Western Australia. For alternative activities relating to dieback in the jarrah forest refer <http://www.dwg.org.au/>

Curriculum Links:

English: Writing

Society and Environment: Investigation, Communication & Participation, Place and Space, Resources, Active Citizenship - Ecological Sustainability

Science: Earth and Beyond

Technology and Enterprise: Information

Mathematics: Space

Links:

www.alcoa.com.au

<http://www.dwg.org.au/>

<http://en.wikipedia.org/wiki/Polyhedron>



Teacher Resource:



mining & rehabilitation

Alcoa has two bauxite mines in WA's Darling Range - Huntly and Wilkesdale. The Huntly mine, established in the early 1970s to supply the Pinjarra alumina refinery, now also supplies the Kwinana alumina refinery. The Wilkesdale mine was established in 1984 and supplies the Wagatip alumina refinery. Alcoa is committed to restoring a self-sustaining jarrah forest ecosystem after mining. For more than two decades Alcoa has conducted an innovative and highly effective rehabilitation program and has achieved its goal of restoring 100% botanical richness to rehabilitated areas. This restoration work has won worldwide recognition for environmental excellence.



Preparation of mining area

All useful products including sawlogs, fence posts and firewood are removed before mining. Some of the remaining wood is put aside for animal habitats. Topsoil and overburden are carefully removed and returned after mining when the areas are being rehabilitated.



Bauxite mining

A 4-5 m layer of caprock and bauxite is removed using large excavators or loaders and haul trucks.



Crushing plant

Ore is taken to a crusher where it is crushed into smaller pieces.



Ore conveyors

The ore is then transported by conveyor belt and rail to the refineries for processing.



Rehabilitation

After mining the edges of the mine pit are smoothed. Topsoil and overburden are returned to the site and the earth is prepared to prevent soil erosion and for seeding and planting. Logs and rocks put aside during clearing are returned to provide shelter and nesting sites for animals.