Background Information

Australia produces 96 per cent of the world’s opals. Opal was first mined south of Quilpie in 1871, following its discovery at Listowel Downs near Blackall in 1869. Today, Quilpie remains the largest miner of opal and the only producer of the ironstone boulder opal.

The opal fields of Outback Queensland follow a 300 km-wide belt of deeply weathered Cretaceous sedimentary rocks known as the Winton Formation. This belt extends a distance of about 1,000 kilometres from Hungerford on the New South Wales border, west of the townships of Cunnamulla, Quilpie, Longreach and Winton, to Kynuna. Boulder opal is unique to Queensland and widely distributed in the weathered sandstone rocks common to these areas. In general, finds can range in size from a few centimetres to three metres across.

Opal acts as a lining between the concentric layers or cracks of ironstone. Sometimes it appears as a kernel in smaller concretions or nuts – hence the term ‘Yowah-nuts’. While boulder opal is only found in Queensland, other more common opal types include:

- Matrix opal – where the opal occurs as a network of veins between grains of the host rock (ferruginous sandstone or ironstone);
- Seam or band opal – usually found encased in ironstone;
- Pipe opal – which may be up to several centimetres in diameter within the sandstone; and
- Wood opal – sometimes found replacing woody tissue material.

Large mines are mostly open-cut operations. Boulders are carefully removed from the ground for processing and heavy equipment is often used to open up old workings. Underground mining is also practised and shafts are sunk to detect any intersecting layers beneath the ground surface. Miners use light machinery to remove the boulders, at which point they are checked for opal content and sorted for sale or further processing.

Australian Curriculum Links

<table>
<thead>
<tr>
<th>Year</th>
<th>Subject</th>
<th>Curriculum Links</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Geography</td>
<td>ACHGK028</td>
</tr>
<tr>
<td>7</td>
<td>Geography</td>
<td>ACHGK043, ACHGK044, ACHGK040</td>
</tr>
<tr>
<td></td>
<td>Science</td>
<td>ACSSU116, ACSHE121</td>
</tr>
<tr>
<td>8</td>
<td>Geography</td>
<td>ACHGK050, ACHGK056</td>
</tr>
<tr>
<td></td>
<td>Science</td>
<td>ACSSU153, ACSHE136</td>
</tr>
</tbody>
</table>

Quirky fact:

When boulder opal is cut and polished some of the ironstone is always retained as a natural backing.
Inquiry Questions

<table>
<thead>
<tr>
<th>Subject</th>
<th>Years</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geography</td>
<td>5/6</td>
<td>How has the environment influenced the characteristics of mining communities?</td>
</tr>
<tr>
<td></td>
<td>7/8</td>
<td>How do opals form?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How do remoteness and scarcity of water influence the characteristics of mining communities?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Read a daily newspaper and write down everything you can find related to mining in Queensland/ Australia</td>
</tr>
<tr>
<td>Science</td>
<td>7/8</td>
<td>How do opals form?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How does scientific understanding help people live, work and manage resources in the Outback?</td>
</tr>
</tbody>
</table>

Points of Interest

- Gem Fossicking, Quilpie
  Quilpie has fossicking at Duck Creek and Sheep Station Creek opal fields.

- Quilpie Museum and Visitor Information Centre
  Brolga Street, Quilpie QLD 4480
  For information contact the Quilpie Visitor Information Centre for maps and permits or contact the Department of Mines and Energy at www.dme.qld.gov.au
  Cost: Fees and licenses apply
  Hours: By appointment
  Phone: (07) 4656 1133
  Email: tourism@quilpie.qld.gov.au
  Website: www.quilpie.qld.gov.au
  Please note: All mining activity is covered under Acts administered by the Department of Natural Resources and Mines. Permission is required before entering an area held under mining tenure and a Prospecting Permit is usually required.

- Gem fossicking, Opalton

- Gem fossicking, Yowah

Additional Resources

Tourism Queensland
Source: General Outback information
www.adventureoutback.com.au

The Mineral and Gemstone Kingdom
www.minerals.net/mineral/opal.aspx

References

Queensland Department of Natural Resources and Mines
www.dnrm.qld.gov.au/

Opals Down Under

Opal Bar Map

Further Information

Department of Mines and Energy
Information Centre
Level 2, Mineral House
41 George Street, Brisbane QLD 4001
Phone: (07) 3237 1434

Map of Outback Queensland