



Metallurgy

2008 University of Ballarat Teacher Professional Development Program Presented in Collaboration with the Centre for Sustainable Resources Processing

NEW: professional development offerings for high schools science teachers

Mineral to metal in one lesson

A 90-min Professional Development Course for Science Teachers

Copper is a crucial metal for modern living with approximately 10 millions tonnes of metal produced from minerals each year. Around 80% of this is from sulphide minerals using a high temperature route which produces sulphur dioxide. The remaining 20% is produced from oxidised ores, which contain the highly colourful minerals malachite and azurite, using very simple chemistry.

This workshop will produce copper metal from an oxide ore using the same chemical processes as those used in industry. The equipment required for the experiments is remarkable simple and the whole extraction process can readily be duplicated in a school laboratory at low cost with low hazard reagents.

Each participant will be given comprehensive notes on the extraction of copper and the experimental method. Also included are some suggestions how the experiment can be used within the curriculum.

TBC, Geelong: 4pm, Monday 7th April
University of Ballarat: 4pm, Tuesday 8th April

The chemistry and physics of extractive metallurgy

A One-Day Professional Development Course for Science Teachers

This introductory short-course will allow you to:

- *Broaden your understanding of the chemistry and physics of extractive metallurgy*
- *Acquire a variety of resources to use in your classroom*
- *Undertake 3 laboratory experiments relevant to school chemistry and physics*
- *Electroplate gold from cyanide solution*
- *Work with molten metals at greater than 1000°C*
- *Learn of career opportunities for your students in minerals and metallurgy*
- *Discuss how extractive metallurgy fits into the Victorian Curriculum*
- *Network with academic and industry representatives*
- *Receive a professional development certificate of completion*

University of Ballarat: Friday 11th July

COMMUNITY LECTURES and REGIONAL TEACHER PDs

We are happy to present community and student lectures about extractive metallurgy and mineral processing for school clusters in regional areas. The lectures are aimed at a non-technical audience and include a number of practical demonstrations. There are presently two lectures, "Aluminium through the Looking Glass – History, Production, Properties and Uses" and "Roman glass to rocket nozzles, the story of nickel and cobalt", and two teacher PD's on copper production and the Bayer process available. A tour of Western Victoria is planned for September 2008.

PLANT TOURS

It is intended to offer the opportunity to visit a range of local minerals processing plants for a guided tour accompanied by academic staff from Metallurgy at the University of Ballarat. Please register your interest for this exciting opportunity.

To add your name to our mailing list or to register for any course:
Contact Stephanie Davison at 03 5327 9373 or e-mail s.davison@ballarat.edu.au

Visit our websites:

www.csrp.com.au

<http://www.ballarat.edu.au/ard/sci-eng/courses/met.shtml>

Due to the generous sponsorship of the Metallurgy Department at the University Of Ballarat and the industrial partners of the Centre for Sustainable Resources Processing, these courses are free of charge to any secondary science teachers.



The metallurgy department at the University of Ballarat is generously partnered by the Xstrata Zinc Alliance.

