



The information for this activity is found on the High-Tech Metal Resources of New South Wales map available in hard copy or free online at <https://resourcesandgeoscience.nsw.gov.au/miners-and-explorers/geoscience-information/products-and-data/high-tech-metal-resources-of-nsw>

Metal from rock

Minerals are the **compounds** (pure substances) that make up rocks. Some minerals contain valuable metals. We refer to rocks as **ore** if they contain enough minerals to make extraction profitable. Extraction involves mining to collect minerals and processing minerals to obtain pure metal.

The high-tech metal deposits in NSW are originally from igneous rock. The minerals were then concentrated into valuable ore.

Metal deposits of Broken Hill and the Lachlan Orogen were concentrated by hot fluids underground. Fluids dissolved the metals in underground magma, concentrating them and depositing metal in the surrounding rock.

The deposits in the Murray Basin and Fifield/Nyngan belt are in sand and soil, respectively. What processes led to these deposits? (Refer to information on the map: https://resourcesandgeoscience.nsw.gov.au/_data/assets/pdf_file/0008/836954/high-tech_map.pdf)

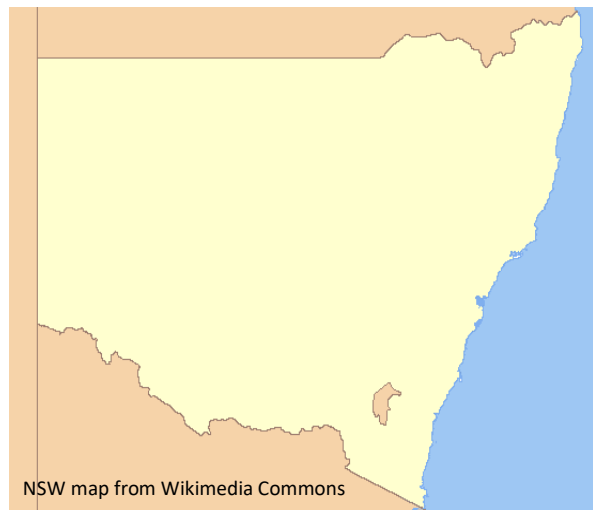
Investigate a deposit of high-tech metals

Choose one of the projects in New South Wales to investigate in detail for this study. See *Project Summaries* on the map or online at https://resourcesandgeoscience.nsw.gov.au/_data/assets/pdf_file/0010/836956/high-tech_projects_nsw.pdf

Label the location and name of your project on the NSW map at right.

What high-tech metal(s) is found at this site?

What is special about this mine? (life of mine, scale of resources, etc.)





Uses for the metals at your chosen site

Find out more about metal(s) from your site in the information about 'Sources and uses of high-tech metals' (https://resourcesandgeoscience.nsw.gov.au/_data/assets/pdf_file/0011/836957/high-tech_sources_and_uses.pdf).

What is the main use for your metal(s)? _____

What other uses are there for the metal(s)? _____

Is your metal commonly recycled? _____ What % is recycled? _____

What are the benefits of recycling this metal? _____

What are the challenges with recycling? _____

Where is your metal used in a mobile phone? _____

(use the Periodic Table of Mobile Phones to find out

https://resourcesandgeoscience.nsw.gov.au/_data/assets/pdf_file/0012/836967/periodic_table_mobile_phones.pdf)

Rocking the future

In your own words, explain why we may need to mine your chosen site in the future.

Extension

Create a print or video ad for a high-tech metal. Be sure to include:

- Uses of the metal now and in the future
- A photo of the pure metal
- A photo of high-tech products containing the metal
- Locations in NSW where we can obtain this metal

References:

M.J. Armstrong, P.J. Carter, M.J. Drummond, G.D. Fleming, D.B. Forster & L.M. Talbot (compilers) 2018. High-tech metal resources of New South Wales. Geological Survey of New South Wales, Maitland. Available online at <https://resourcesandgeoscience.nsw.gov.au/miners-and-explorers/geoscience-information/products-and-data/high-tech-metal-resources-of-nsw>

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