

STATE LIBRARY  
OF QUEENSLAND

# Year 7 Chemical Sciences

Cover: Selection of databases available through State Library, 2023.

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**Date prepared:** 26 April 2023

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## Overview

As Queensland's leading research library, State Library is a great place to find information to complete your research-based assessments.

State Library's One Search catalogue is the gateway to an extensive suite of national and international journals, databases, eBooks, encyclopedias, newspaper archives, and collections of thousands of historical images, letters, artworks, diaries, and artefacts to interrogate as sources.

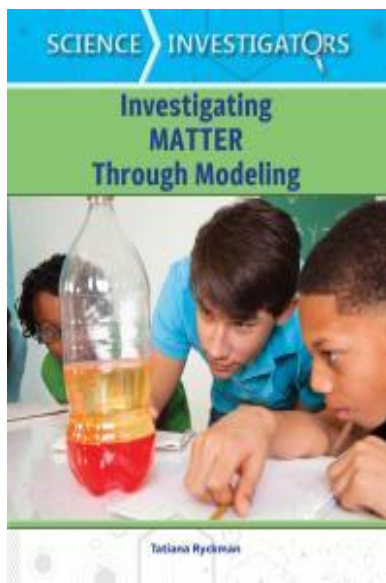
## Before you get started

[Become a member](#) of State Library of Queensland (it's free!).

Once you have joined State Library, [log in](#) to your account in One Search so you can use the links in this research guide to access the featured collection items.

You can search our [OneSearch catalogue](#) or begin exploring by clicking on some of the featured items contained in this research guide.

## Featured Ebook



# Particle Theory

Use particle theory to describe the arrangement of particles in a substance, including the motion of and attraction between particles, and relate this to the properties of the substance.

- Using and constructing models, diagrams or virtual simulations to represent changes in particle arrangement as substances change state.
- Relating motion and energy of particles to distances between particles of the same substance in different states.
- Comparing attractive forces in the solid, liquid and gaseous states of the same substance and relating this to relative position and movement of particles.
- Examining how the changing motion and energy of particles is affected by the amount of heat energy absorbed or released.
- Comparing the properties of different states of matter and explaining differences using particle theory.
- Investigating properties of materials such as density, melting point and compressibility and explaining these in terms of particle arrangement.
- Explaining the process of diffusion in a liquid and a gas in terms of particles.

# Particle Model

Use a particle model to describe differences between pure substances and mixtures and apply understanding of properties of substances to separate mixtures.

- Using representations of particles to show the difference between samples of pure substances and mixtures, and identifying examples of each.
- Examining different solutions and identifying the solvent and solute.
- Investigating and using a range of physical separation techniques such as filtration, decantation, evaporation, crystallisation, chromatography and distillation.
- Exploring and comparing separation methods used in a variety of situations such as in the home, recycling industries and purifying water.
- Analysing how the physical properties of substances in mixtures, such as particle size, density or volatility, determine the separation technique used.
- Investigating separation techniques used by First Nations Australians, such as hand-picking, sieving, winnowing, yandying, filtering, cold-pressing and steam distilling.

# Featured Databases

## For easy reference

[Oxford Reference](#) spans 25 different subject areas, bringing together 2 million digitised entries across Oxford University Press's dictionaries, companions, and encyclopedias.

The screenshot shows the Oxford Reference search results page. At the top, there is a search bar and navigation tabs for 'Subject' and 'Reference Type'. Below the search bar, it indicates 'Oxford Reference Search Results' and shows the user is signed in as 'State Library of Queensland'. The search query is 'particle theory', and it shows 43 entries and 1 book. The results are sorted by 'Relevance'. The first result is 'minimal supersymmetric standard model', with a reference type of 'Overview Page' and a subject of 'Science and technology, Physics'. A brief description follows: '(MSSM)The smallest possible model that combines the standard model of elementary particle theory with supersymmetry. It predicts that all the fermions and gauge bosons of the standard model should ...'.

The [Britannica Library](#) has articles, images and more, with a selection of resources especially for teenagers.

The screenshot shows the Britannica Library Teens page. It features a grid of nine science-related articles, each with a thumbnail image and a brief description:

- Several decades of fusion research produced the Particle Beam Fusion Accelerator...** (Image: Particle beam fusion accelerator)
- According to the evolutionary, or big bang, theory of the universe, the universe...** (Image: Cosmic microwave background radiation)
- Electrons are shot through the double slit. Here, however, the slits are much...** (Image: Double-slit experiment diagram)
- Another method of radiocarbon dating uses particle acceleration to separate...** (Image: Radiocarbon dating diagram)
- Block diagram of a communication system** (Image: Block diagram of a communication system)
- In this experiment, a BB gun shoots BB's rather erratically toward a similar...** (Image: BB gun experiment diagram)
- Fig. 4. Individual quarks (circles) cannot be separated from the particles they...** (Image: Quark confinement diagram)
- Binary symmetric channel** (Image: Binary symmetric channel diagram)
- Binary erasure channel** (Image: Binary erasure channel diagram)

## For engaging reading

[National Geographic Virtual Library](#) is a powerful tool for research offering access to over 100+ years of magazines and hundreds of books, maps, videos, and images.

GALE PRESENTS  
NATIONAL GEOGRAPHIC

particle theory  Advanced Search

FEATURED ARTICLES (44)

**The View From a Giant Telescope: Cosmic Dawn**  
Authors: Yudhijit Bhattacharjee and Dave Yoder  
Publication: National Geographic Magazine  
Apr. 2014 Volume 225, Issue 4 p. [76] Article  
Found in National Geographic Archive 1995+

**Last of the Neanderthals**  
Authors: David Liittschwager, Alfons Kennis, Joe McNally, Adrie Kennis, and Stephen S. Hall  
Publication: National Geographic Magazine  
Oct. 2008 Volume 4, Issue 214 Article  
Found in National Geographic Archive 1995+

**At the Heart of All Matter: The God Particle**

[JSTOR](#) provides access to more than 12 million scholarly journal articles and eBooks, and is especially good for primary sources.

JSTOR All Content Images  
particle model, chemistry  Workspace Search

Refine Results

ACCESS TYPE

Everything  
See all results, including content you cannot download or read online

Content I can access

SEARCH WITHIN RESULTS

CONTENT TYPE

Academic content:

Journals (27,857)  
 Book Chapters (165)  
 Research Reports (80)

Primary source content:

Serials (787)  
 Documents (588)  
 Books (398)  
 Images (3)

29,860 results

Sort by: Relevance

JOURNAL ARTICLE  
**Chemistry Teachers' Knowledge and Application of Models**  
Zuhao Wang, Shaohui Chi, Kaiyan Hu, Wenting Chen  
Journal of Science Education and Technology, Vol. 23, No. 2, Special Issue: International Conference on Science Education (Nanjing, China, October 2012) (APRIL 2014), pp. 211-226  
...DOI: 10.1007/s10956-013-9455-7 Chemistry Teachers' Knowledge and Application of Models  
Zuhao Wang · Shaohui Chi · Kaiyan Hu · Wenting Chen Published online: 12 June 2013 © Springer Science+Business Media New York 2013 Abstract Teachers' knowledge and application of model play an important role in students' development of mod...  
 Download  
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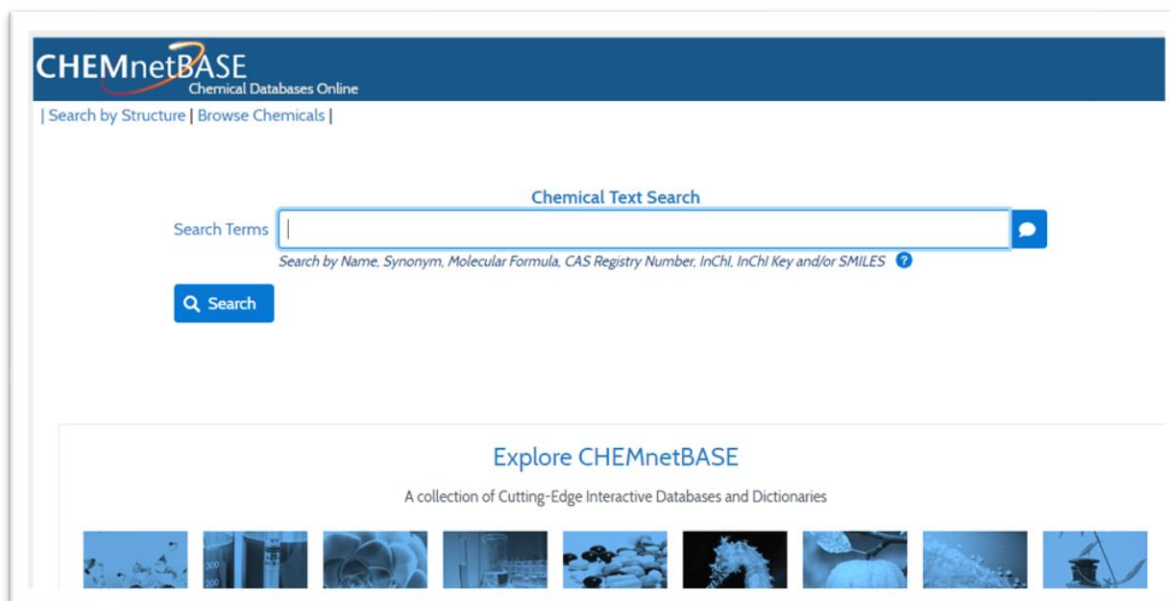
BOOK CHAPTER  
**Chemistry** (pp. 202-217)  
Gareth Bates  
From: *What Should Schools Teach?: Disciplines, subjects and the pursuit of truth*. UCL Press (2021)  
Edition: 2  
 OPEN ACCESS  
...12 Chemistry gareth bates the study of material metamorphosis of materials (August Kekulé, 1861, as cited in Rooney, 2017: 1) Where to begin? Chemical processes are constantly occurring in the universe, be it by cosmological, biological, ecological or indeed human means. With the ubiquitous nature of chemical processes, you can be...  
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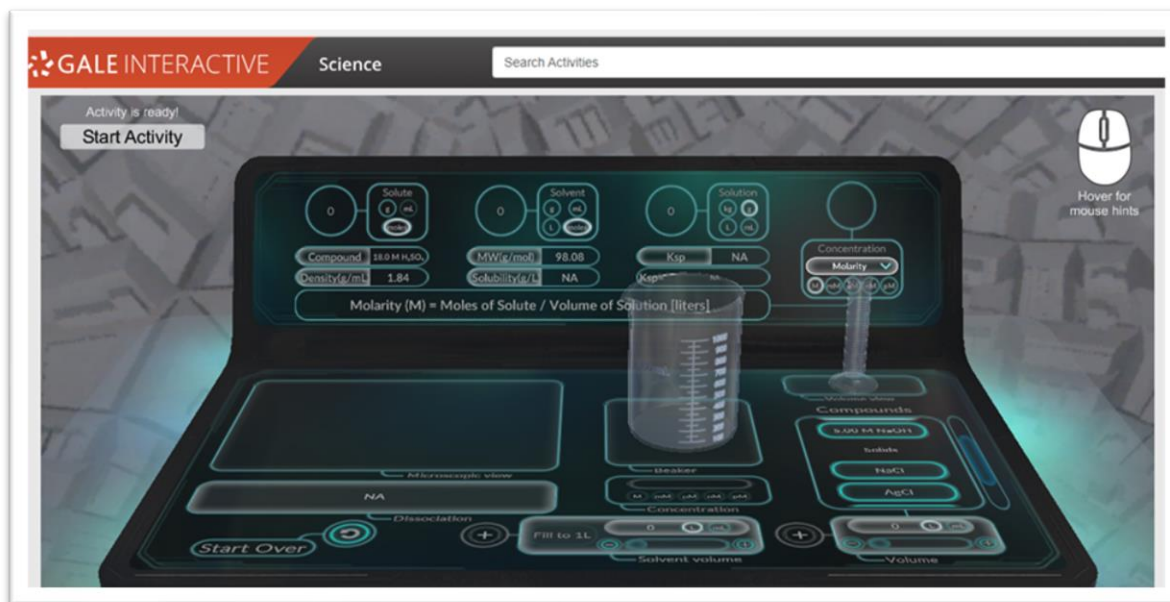
# Specialist databases

## Science

[CHEMnetBASE](#) provides a comprehensive database of chemicals and their uses, as well as chemical equations and properties.



[Gale Interactive: Science](#) provides a comprehensive view of the most-studied science subjects. Authoritative, high-quality digital content is paired with interactive 3D models.



[Queensland Museum](#) provide Learning Resources website students with many activities, fact sheets, images, and videos.

The screenshot shows the Queensland Museum Learning Resources website. The header includes the Queensland Museum Network logo, the title 'Learning Resources', and navigation links for 'Home', 'About', and 'Save list'. Below the header, it states 'Showing 15 of 41 resources'. Three resource cards are displayed:

- Problematic Polymers: Teacher Resource**  
Years: 5, 6, 7, 8, 9, 10
- Plastic Planet: Community of Inquiry**  
Years: 5, 6, 7, 8, 9
- Water Matters: Online Teacher PD**  
Years: 6, 7, 8, 9  
Aboriginal and Torres Strait Islander Culture  
Chemistry

The [Australian Institute Aboriginal and Torres Strait Islander Studies](#) is a powerful tool for First Nations reading and research. Their online database and research projects can provide incredible insight into science from the First Nations perspective.

The screenshot shows the AIATSIS website. The header includes the AIATSIS logo, navigation links for 'Explore', 'Family history', 'Collection', 'Research', 'Education', 'What's new', 'About', 'Shop', and a search bar. The main content area features a large heading 'Ngurrara 2 way learning project' and a 'Share' button with social media icons. Below the heading is a decorative image with orange and black wavy patterns. To the right of the image, the following information is provided:

- Publication date**  
Wednesday, 1 June 2016
- Type**  
Presentation
- Event**  
2016 National Native Title Conference
- Brendan Fox , Peter Murray**
- Attachment/s**  
[presentation.pdf \(PDF, 15.64 MB\) >](#)



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