

STATE LIBRARY<sup>1</sup>  
QUEENSLAND

# Year 7 Chemical Sciences

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

© 2026. This work is licensed under the Attribution-NonCommercial-ShareAlike 4.0 International Creative Commons ([CC BY-NC-SA 4.0 license](https://creativecommons.org/licenses/by-nc-sa/4.0/)) by the State Library of Queensland. You are free to share and adapt the work under the following terms: you must give appropriate credit, it is for a non-commercial purpose and, if you remix, transform, or build upon the materials, you must distribute your contributions under the same license as the original.

For other uses please contact State Library at [copyright@slq.qld.gov.au](mailto:copyright@slq.qld.gov.au)



**Date prepared:** 04 March 2026

### **Copyright information for teachers**

This research guide is designed for individual use by students.

Please note, due to licensing arrangements, State Library's subscription databases and eBooks are for private research and study purposes only. They may not be used as teaching resources in classroom environments in schools or other educational institutions and students must not be required to access specific databases or eBooks as part of the curriculum.

Teachers can advise students on State Library's resources and encourage their use to help with their studies and research. Students are encouraged to access State Library's resources at school, but not during class time.

Teachers are most welcome to advise students what is available via State Library, and to encourage students to make use of eBooks and databases to help with their studies. It is permissible for a teacher to demonstrate the use of State Library's catalogue, and to point out how various online material can be accessed.

It is also permissible for students to access State Library's online resources at school – but this must not be during class time. An example of permitted use might be where students have a spare period when they work on assignments or homework, and they are accessing databases as private members of the State Library. Information about joining the State Library is [here](#).

Please also note that State Library has digitised a range of material such as diaries, and out of copyright publications held in our collections. There are no restrictions on the use of this material as part of a teaching program – and no requirement to be a member of the library to use this material. They are easily findable searching our catalogue using the "SLQ digitised collections" option in the dropdown menu.

For other information visit [Understanding copyright](#) or contact State Library at [copyright@slq.qld.gov.au](mailto:copyright@slq.qld.gov.au)

## 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.

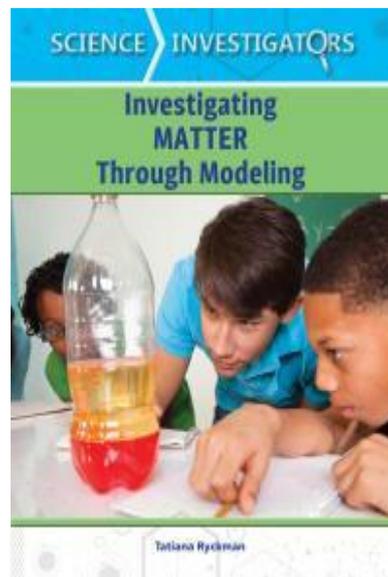
## Before you get started

[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, the 'Oxford Reference' logo is on the left, and a search bar is on the right. Below the logo, there are navigation tabs for 'Subject' and 'Reference Type', and user account links for 'My Content (0)' and 'My Searches (0)'. The main heading is 'Oxford Reference Search Results'. On the left, there is a sidebar with 'Signed in as: State Library of Queensland' and a 'Narrow Your Choices' section with 'REFINE TERMS' and a search box containing 'particle theory'. The main content area shows 'You are looking at 1-20 of 43 entries for: All: "particle theory"'. Below this, there are filters for '43 ENTRIES' and '1 BOOKS', and a 'View' section with 'Items per page: 20' and 'Sort by: Relevance'. The first result is for 'minimal supersymmetric standard model' with a reference type of 'Overview Page' and a subject of 'Science and technology, Physics'. The description starts with '(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. At the top, the 'Britannica Library Teens' logo is on the left, and search and menu icons are on the right. The main content area is a grid of nine resource cards. Each card has a small image and a text description. The cards are: 1. 'Several decades of fusion research produced the Particle Beam Fusion Accelerator...' with an image of a fusion reactor. 2. 'According to the evolutionary, or big bang, theory of the universe, the universe...' with an image of galaxies. 3. 'Electrons are shot through the double slit. Here, however, the slits are much...' with a diagram of a double-slit experiment. 4. 'Another method of radiocarbon dating uses particle acceleration to separate...' with a diagram of a particle accelerator. 5. 'Block diagram of a communication system' with a block diagram showing input, processing, and output. 6. 'In this experiment, a BB gun shoots BB's rather erratically toward a similar...' with a diagram of a BB gun experiment. 7. 'Fig. 4. Individual quarks (circles) cannot be separated from the particles they...' with a diagram of quarks. 8. 'Binary symmetric channel' with a diagram of a binary symmetric channel. 9. 'Binary erasure channel' with a diagram of a binary erasure channel.

## 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.

The screenshot shows the National Geographic Virtual Library search results for the query 'particle theory'. The page features a header with the National Geographic logo and a search bar. Below the search bar, there are two featured articles:

- 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 Littschwager, 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+

A third article, 'At the Heart of All Matter: The God Particle', is partially visible at the bottom.

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

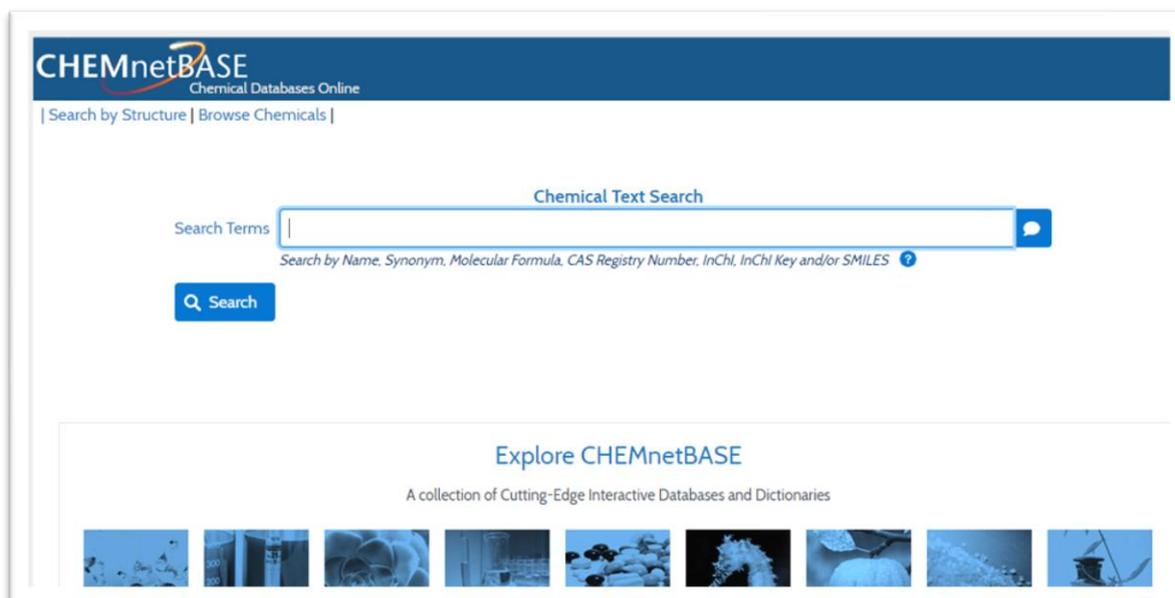
The screenshot shows the JSTOR search results for the query 'particle model, chemistry'. The page displays 29,860 results. The left sidebar contains filters for 'Refine Results', 'ACCESS TYPE', 'SEARCH WITHIN RESULTS', and 'CONTENT TYPE'. The main results area shows two entries:

- 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  
Download Save Cite
- 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  
Download Save Cite

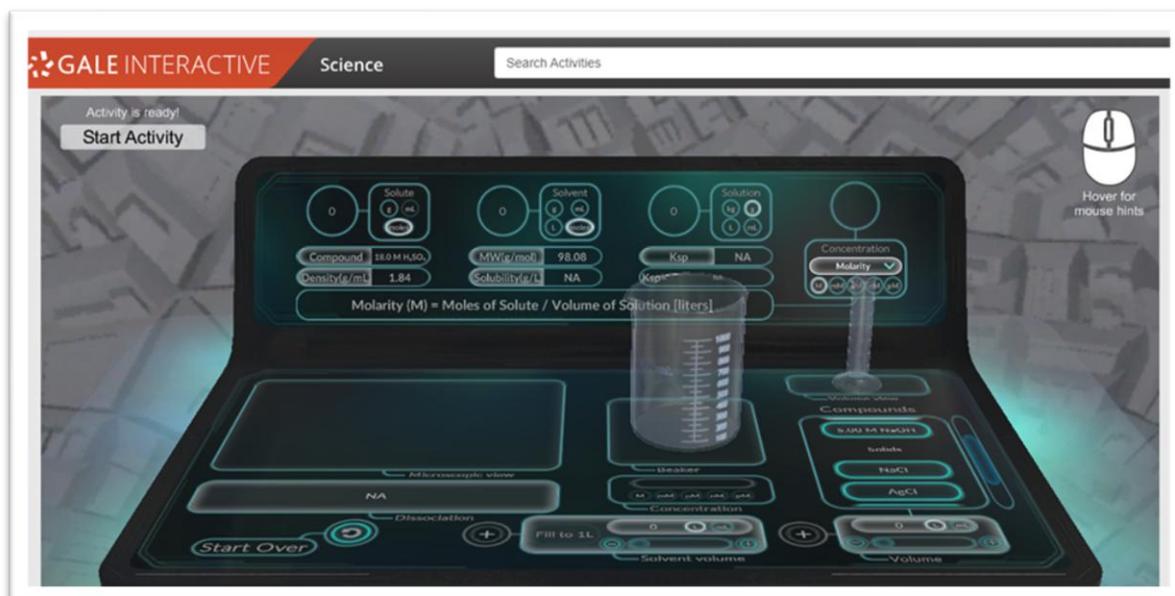
# Specialist databases

## 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 text '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', and 'About', a 'Shop' link, and a search bar. The main content area features the title 'Ngurrara 2 way learning project' and a 'Share' button with social media icons for Facebook, Twitter, and Email. Below the title is a decorative graphic with orange, black, and white wavy lines. To the right of the graphic, the following information is displayed:

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

## **Borrow items.**

Order items online through State Library's One Search catalogue and [borrow items from State Library's collections](#) when you visit us onsite.

## **Ask a librarian**

Ask one of State Library's expert librarians for [help with your research inquiry](#).