

STATE LIBRARY¹
QUEENSLAND

Year 8 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



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

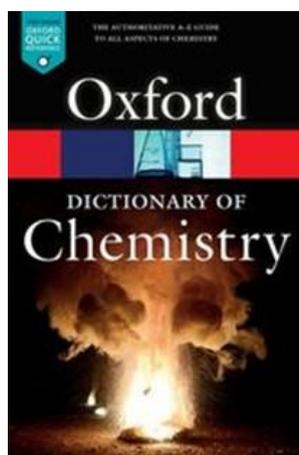
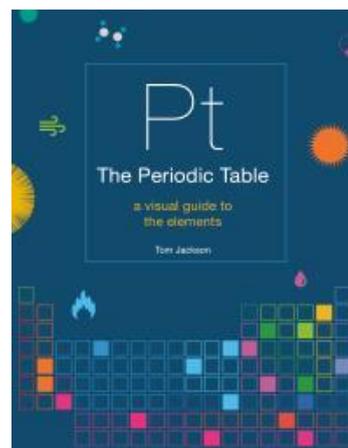
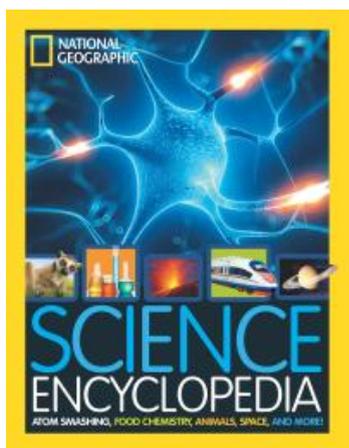
Overview

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

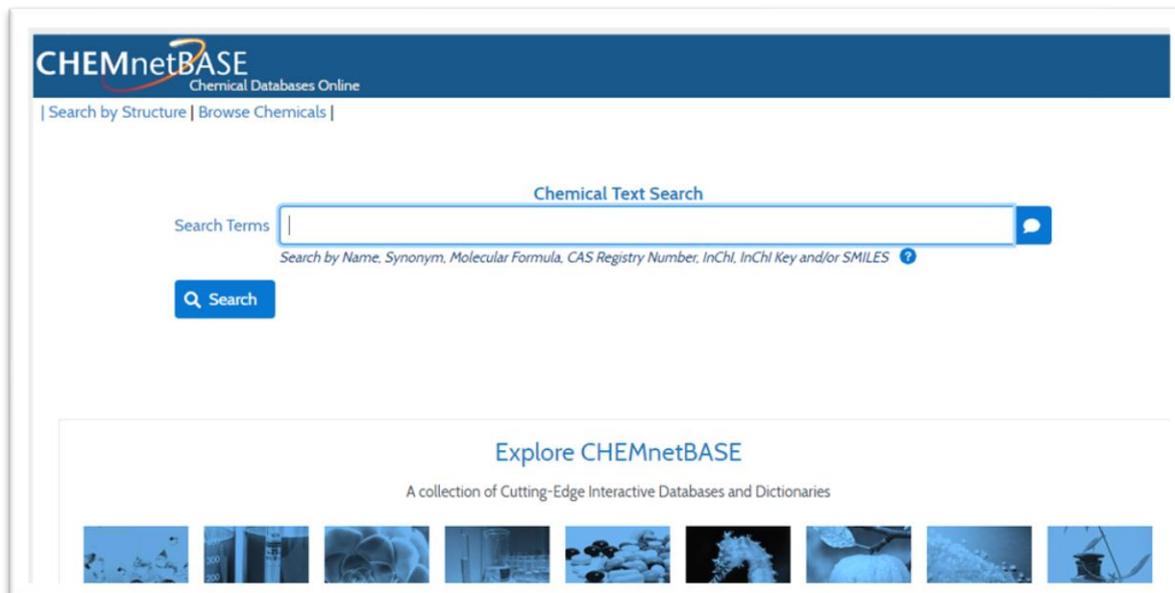
[Become a member](#) of State Library of Queensland (it's free!). Once you have joined State Library, [log in](#) to your account in One Search so you can use the links in this research guide to access the featured collection items. You can search our [OneSearch catalogue](#) or begin exploring by clicking on some of the featured items contained in this research guide.

E-Books



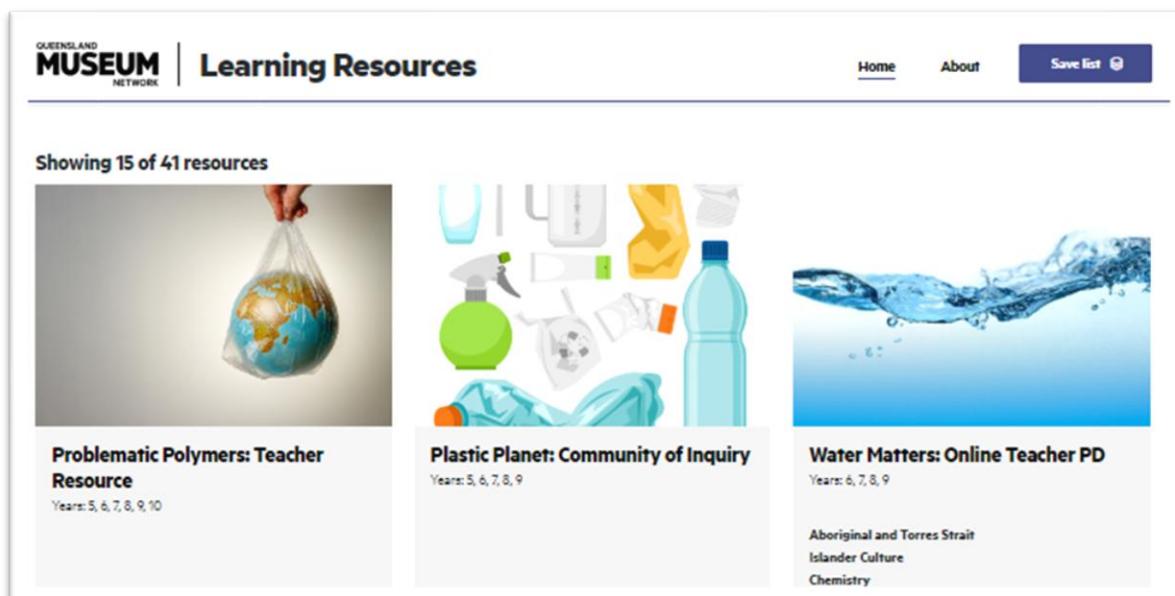
Featured Databases

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



The screenshot shows the CHEMnetBASE website. At the top, there is a blue header with the logo "CHEMnetBASE Chemical Databases Online" and navigation links for "Search by Structure" and "Browse Chemicals". Below the header is a search section titled "Chemical Text Search" with a search bar and a "Search" button. The search bar contains the text "Search Terms" and a search icon. Below the search bar, there is a link to "Explore CHEMnetBASE" and a sub-header "A collection of Cutting-Edge Interactive Databases and Dictionaries". At the bottom of the search section, there is a row of nine small thumbnail images representing different chemical databases.

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



The screenshot shows the Queensland Museum Learning Resources website. At the top, there is a header with the logo "QUEENSLAND MUSEUM NETWORK" and the text "Learning Resources". There are navigation links for "Home", "About", and "Save list". Below the header, there is a section titled "Showing 15 of 41 resources". There are three resource cards displayed. The first card is titled "Problematic Polymers: Teacher Resource" and shows a hand holding a plastic bag with a globe inside. The second card is titled "Plastic Planet: Community of Inquiry" and shows various plastic items like a bottle, a spray bottle, and a bag. The third card is titled "Water Matters: Online Teacher PD" and shows a splash of water. Each card includes the title, years level, and a list of subjects.

Classifying Matter

Classify matter as elements, compounds or mixtures and compare different representations of these, including 2-dimensional and 3-dimensional models, symbols for elements and formulas for molecules and compounds.

- Using virtual and physical models to distinguish between elements and compounds in terms of types of atoms.
- Examining how Dmitri Mendeleev arranged the elements in the first version of the periodic table and comparing his arrangement with the current version.
- Explaining why elements are represented by symbols, compounds and molecules by formulas and mixtures by percentages.
- Using representations to show the classification of matter as elements, compounds and different types of mixtures such as solutions, suspensions and colloids.
- Examining the information conveyed by different types of representations of elements and compounds and identifying where and why these different representations are used.
- Creating a timeline or models to show how the concept of an element has changed over time from Democritus to John Dalton.

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

The screenshot shows the Britannica Library search results for the query "elements, compounds or mixtures". The page features a teal header with the search query and the number of results (1,476). Below the header, there is a reading level selector with options 1, 2, and 3, where level 2 is selected. A navigation bar includes links for Articles, Images, Videos, and More. The main content area is titled "chemistry" and lists several related topics: "Elements, Compounds, and Mixtures", "Chromatography", and "Evaporation". Each topic has a brief description. At the bottom, there is a link for "sulfur (chemical element)".

[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 "elements, compounds or mixtures". The page displays 10,785 results. On the left, there is a "Refine Results" sidebar with options for "ACCESS TYPE" (Everything, Content I can access) and "CONTENT TYPE" (Academic content). The main results area shows a "Sort by: Relevance" dropdown and a "JOURNAL ARTICLE" filter. The top result is titled "CONNECTING THE VISIBLE WORLD WITH THE INVISIBLE: Particulate diagrams deepen student understanding of chemistry" by Thomas Pentecost, Sarah Weber, and Deborah Herrington, published in *The Science Teacher*, Vol. 83, No. 5, Systems and Models (Summer 2016), pp. 53-58. The snippet below the title describes the article's content, mentioning "point depression data collected in lab. properties) Post-assessment After completing a lab activity where students had to classify both macroscopic (elements , compounds , and and particulate representations of matter (Classifying Chemical Substances Oh mixtures...".

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

The screenshot shows the Gale Interactive Science interface. On the left, there is a 3D model of a laptop with various interactive buttons and a 'Start Activity' button. The text 'Activity is ready!' and 'Start Activity' is visible. On the right, there is a search bar and a text panel titled 'Matter'. The text panel contains the following text:

Matter

In chemistry, matter is defined as anything that has mass and occupies space. In ancient Greece, some philosophers, most notably Heraclitus (c. 535–c. 475 BC), believed that everything in the world was in a state of fluctuation. Others argued that there must be some permanence. Otherwise it would not be possible to see anything as being real. The fifth century Greeks were apparently the first thinkers to attribute structure to

Below the 3D model, there is a section titled 'States of Matter: Introduction' with a sub-header 'This session explores the properties of solids, liquids, and gases.' and a list of standards: 'Molecules and Compounds NGSS-HS-PS1-4 CCSS.ELA-Literacy.RST.9-10.3 CCSS.ELA-Literacy.RST.9-10.9'. There are also social media sharing options and a 'Link to Activity' button.

[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 interface. At the top, there is a search bar with the text 'elements, compounds or mixtures' and a search icon. Below the search bar, there is a section titled 'FEATURED ARTICLES (28)'. The first three articles are:

- The Secrets of Chinese Medicine**
Authors: Peter Guin and Fritz Hoffmann
Publication: National Geographic Magazine
Jan. 2016 Volume 205, Issue 01 p. 96-100 Article
Found in National Geographic Archive 1925+
- Desperate for a Cure**
Author: Maridith Kohut
Publication: National Geographic Magazine
July 2017 Volume 232, Issue 1 p. [75] Article
Found in National Geographic Archive 1995+
- Barcelona, Star of the New Europe**
Authors: T. D. Allman and David Alan Harvey
Publication: National Geographic Magazine
Dec. 1993 Volume 164, Issue 6 p. [43] Article
Found in National Geographic Archive 1925+

Energy Change in Reactions

Compare physical and chemical changes and identify indicators of energy change in chemical reactions.

- Performing simple chemical reactions to identify the indicators of chemical change such as gas production, solid production, colour change and temperature change.
- Analysing and interpreting data on the properties of substances before and after the substances interact to determine if a chemical or physical change has occurred.
- Investigating and identifying energy changes in different chemical reactions such as differences in temperature.
- Examining how the physical and chemical properties of a substance will affect its production or use.
- Discussing where indicators of chemical change are used for identifying the presence of particular substances, such as in soil, water and medical testing kits.

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

The screenshot shows a search results page from the Britannica Library. The search query is "physical and chemical changes in chemical reactions". The page displays 1-10 of 337 results. The reading level is set to 2. The first result is "Physical Versus Chemical Changes" from the article "chemical reaction". The description states: "A chemical reaction is a process in which one or more substances are converted to one or more different substances. In the reaction, the ...". Below this, there is a section for "chemistry" with 3 results, and a sub-section for "Chemical Change" which explains that substances are changed into other substances through a chemical reaction.

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

The screenshot shows a search results page from JSTOR. The search query is "physical and chemical changes in chemical reactions". The page displays 57,259 results. The results are sorted by Relevance. The first result is a journal article titled "Teaching Through TRADE BOOKS: Understanding Chemical and Physical Changes" by Christine Anne Royce, published in Science and Children, Vol. 57, No. 5, TAKE-HOME SCIENCE (JANUARY 2020), pp. 18-28. The article's synopsis states: "...Understanding Chemical and Physical Changes By Christine Anne Royce While students may be able to describe changes they SYNOPSISsee everyday, such as getting taller or seeing changes in the weather, they may have trouble identify- Information about heat and how energy can be used to cook ing the difference between a physical change...".

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

The screenshot shows the Gale Interactive Science website. At the top, there is a navigation bar with "INTERACTIVE" in a red box, "Science" in white, and a search bar labeled "Search Activities". Below the navigation bar is a large 3D simulation of a chemistry experiment. The simulation features a beaker on a stand with a blue flame underneath. A molecular model of calcium carbonate (CaCO₃) is shown in the foreground, composed of red, white, and green spheres. The simulation interface includes a chemical equation: $\text{CaCO}_3(\text{s}) + \text{energy} \rightleftharpoons \text{CaO}(\text{s}) + \text{CO}_2(\text{g})$. To the left of the equation is a legend for elements: calcium (green), carbon (red), and oxygen (white). Below the equation is a "Molecule/Atom Count" section with a progress bar and a "0%" indicator. To the right of the simulation is a sidebar with a search bar labeled "Search..." and "Advanced Search". Below the search bar is the title "Conservation of m" and a section of text starting with "Some of the most important sci laws known to humankind are c conservation laws; that is, laws demonstrating that certain phys properties remain constant, nev changing. Mass is one of these".

[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 homepage. At the top, there is a banner image of two elephants in a savanna. Below the banner is the National Geographic logo and a search bar labeled "elements, compounds or mixtures" with "Advanced Search" to its right. Below the search bar is a section titled "FEATURED ARTICLES (16)". There are three featured articles listed:

- Living Longer—and Better**
Authors: Fran Smith, Jasper Doest, David Gutenfelder, Nichole Sobocki, and Melanie Wenger
Publication: National Geographic Magazine
Sunday, Jan. 2023 Volume 243, Issue 01 p. 34 Article
Found in National Geographic Archive 1995+
- Too Hot to Live**
Publication: National Geographic Magazine
Thursday, July 2021 Volume 240, Issue 01 p. 40 Article
Found in National Geographic Archive 1995+
- The Addicted Brain**
Authors: Fran Smith and Max Aguilera-Melweg
Publication: National Geographic Magazine
Sept. 2017 Volume 232, Issue 3 Article
Found in National Geographic Archive 1995+

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](#).