



STATE LIBRARY⁷
QUEENSLAND

Year 8

Chemical Sciences

Student research guide

Cover: [Firefighter walking the front of a hazard reduction burn undertaken by the Wilkie Creek Rural Fire Station, Dalby region, 2013](#), Eva Turel-Jewkes, [Queensland Small Towns Documentary Project photographs](#), State Library of Queensland. Image number: 29871-0027-0011.

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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.

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For more information about the use of copyright materials visit [Understanding copyright](#).

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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.
- Complete the [Student research with State Library](#) module for a guide to navigating State Library's resources. Or visit the [One Search help page](#) for tips & tricks for searching One Search.
- You can search our [OneSearch catalogue](#) or begin exploring by clicking on some of the featured items contained in this research guide.

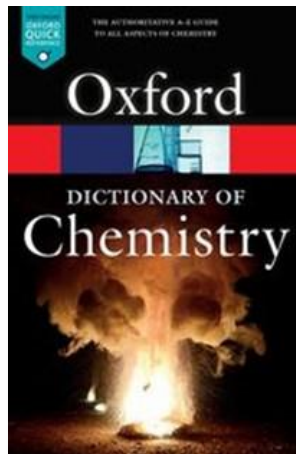
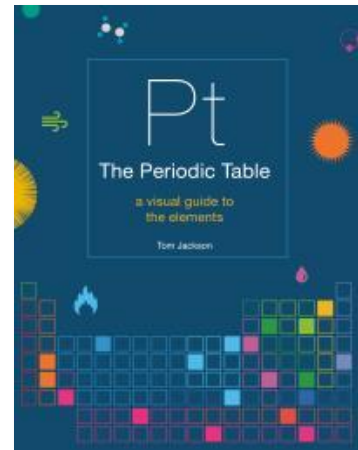
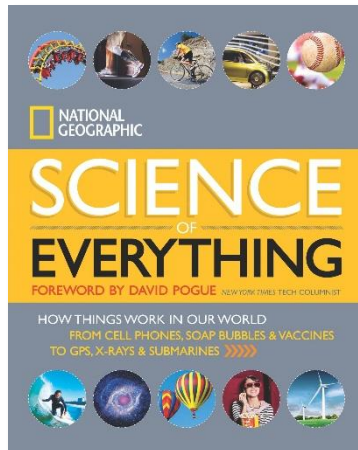
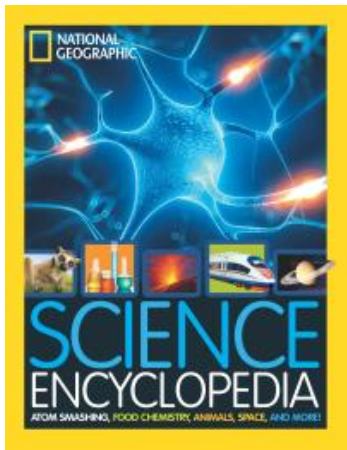
Student research with State Library

Feel more confident navigating State Library's resources to find high quality information sources for your assessments.

[Start module](#) 

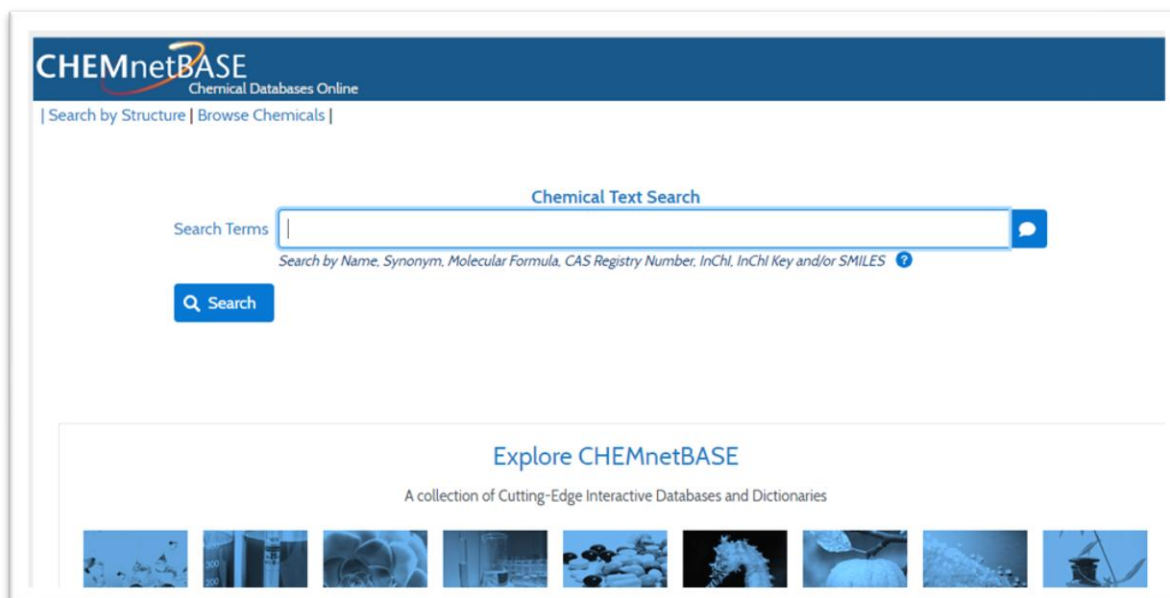


Featured ebooks

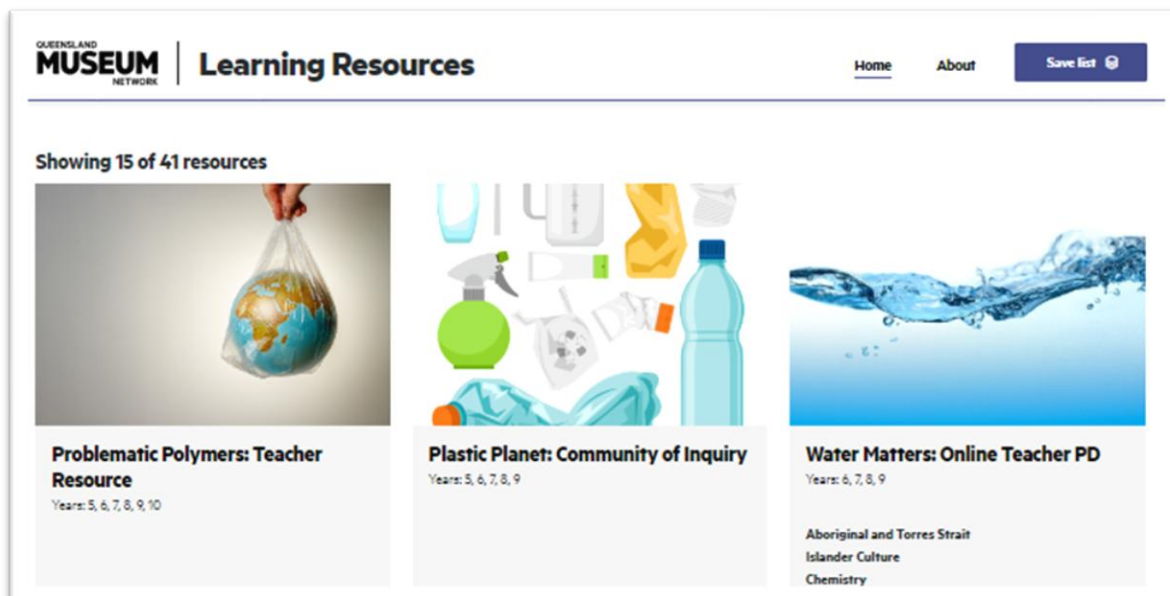


Featured databases

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



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



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 header indicates "DISPLAYING 1 - 10 OF 1,476 RESULTS." and includes a "Reading Level" filter set to 2. The results are categorized under "chemistry" with sub-sections for "Elements, Compounds, and Mixtures", "Chromatography", and "Evaporation". Each section provides a brief definition or description. At the bottom, there is a link to "sulfur (chemical element)".

You searched for "elements, compounds or mixtures"
DISPLAYING 1 - 10 OF 1,476 RESULTS.

Reading Level 1 2 3
Advanced Search

Articles Images Videos More

chemistry - TOP 3 RESULTS. 16 MORE RESULTS IN CHEMISTRY.

Elements, Compounds, and Mixtures
Elements, Compounds, and Mixtures | A sample of a pure element contains atoms that are chemically the same, but different from those of all other **elements** ...

Chromatography
Chromatography | Chromatography consists of a collection of methods that can be used to separate the substances dissolved in a liquid or gas **mixture** ...

Evaporation
Evaporation | Evaporation is used to separate a soluble solid from a liquid **mixture**. In the lab, an open container of the **mixture** is heated. As the temperature ...

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" and includes a "Refine Results" sidebar with filters for "ACCESS TYPE" (Everything, Content I can access) and "CONTENT TYPE" (Academic content). The main results list includes a journal article 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.

JSTOR
All Content Images
elements, compounds or mixtures
Workspace Search Browse

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:

10,785 results

Sort by: Relevance

☐ JOURNAL ARTICLE

CONNECTING THE VISIBLE WORLD WITH THE INVISIBLE: Particulate diagrams deepen student understanding of chemistry

Thomas Pentecost, Sarah Weber, Deborah Herrington

The Science Teacher, Vol. 83, No. 5, Systems and Models (Summer 2016), pp. 53-58

...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 website. The main area features a 3D model of a laptop displaying molecular structures and data. A sidebar on the right is titled "Matter" and contains a paragraph of text. The bottom of the page has social media links and a "Share" button.

States of Matter: Introduction
 This session explores the properties of solids, liquids, and gases.
 Molecules and Compounds NGSS-HS-PS1-4 CCSS.ELA-Literacy.RST.9-10.3 CCSS.ELA-Literacy.RST.9-10.9

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

[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 website. The top header features the National Geographic logo and a search bar. Below the header, there is a section titled "FEATURED ARTICLES (28)" with three article previews. Each preview includes a thumbnail image, the article title, authors, publication information, and a "Keyword Preview" button.

FEATURED ARTICLES (28)

The Secrets of Chinese Medicine
 Authors: Peter Guin and Fritz Hoffmann
 Publication: National Geographic Magazine
 Jan. 2015 Volume 235, Issue 01 p. 69-100 Article
 Found in National Geographic Archive 1995+

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. 1998 Volume 184, Issue 6 p. [43] Article
 Found in National Geographic Archive 1995+

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 the Britannica Library search results for the query "physical and chemical changes in chemical reactions". The header indicates "DISPLAYING 1 - 10 OF 337 RESULTS". Below the header, there is a "Reading Level" filter set to 2, and an "Advanced Search" link. The main content area shows a result titled "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 the text: "The process by which substances are **changed** into other substances is called a **chemical reaction**. In addition to **chemical change**, matter can also undergo two other ...".

[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 "physical and chemical changes in chemical reactions". The header shows "All Content" and "Images" tabs, and a search bar with the query. The results section shows "57,259 results". On the left, there is a "Refine Results" sidebar with "ACCESS TYPE" (Everything, Content I can access) and "CONTENT TYPE" (Academic content). The main content area shows a result titled "Teaching Through TRADE BOOKS: Understanding Chemical and Physical Changes" by Christine Anne Royce. The description 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 displays the Gale Interactive Science website. The top navigation bar includes the 'INTERACTIVE Science' logo, a 'Search Activities' input field, and a 'Browse Activities' link. The main content area features a chemistry simulation titled 'Conservation of mass'. It shows a chemical equation: $\text{CaCO}_3(\text{s}) + \text{energy} \rightleftharpoons \text{CaO}(\text{s}) + \text{CO}_2(\text{g})$. Below the equation, there is a 'Molecule/Atom Count' section with a progress bar and a '0%' indicator. To the left, a legend identifies the elements: calcium (green), carbon (red), and oxygen (white). A 3D molecular model of calcium carbonate is shown. On the right, a glass beaker contains a blue liquid, and a small container holds a purple substance. The right sidebar contains a 'Search...' input field, an 'Advanced Search' link, and a section titled 'Conservation of mass' with a brief description: 'Some of the most important scientific laws known to humankind are conservation laws; that is, laws demonstrating that certain physical properties remain constant, never 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. The top banner features the National Geographic logo and a large image of two elephants. Below the banner is a search bar with the placeholder text 'elements, compounds or mixtures' and an 'Advanced Search' link. The main section is titled 'FEATURED ARTICLES (16)'. It lists three featured articles, each with a thumbnail image, a title, authors, publication information, and a 'Keyword Preview' button. The first article is 'Living Longer—and Better' by Fran Smith, Jasper Doest, David Gutenfelder, Nichole Sobczyk, and Melanie Wenger, published in National Geographic Magazine, Sunday, Jan. 2023, Volume 243, Issue 01, p. 34. The second article is 'Too Hot to Live' published in National Geographic Magazine, Thursday, July 2021, Volume 240, Issue 01, p. 40. The third article is 'The Addicted Brain' by Fran Smith and Max Aguilera-Melweg, published in National Geographic Magazine, Sept. 2017, Volume 232, Issue 3, Article. Each article is also noted as 'Found in National Geographic Archive 1995+'.

More research

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