

STATE LIBRARY  
OF QUEENSLAND

# Year 10 Chemical Sciences

Cover: Selection of databases available through State Library, 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.

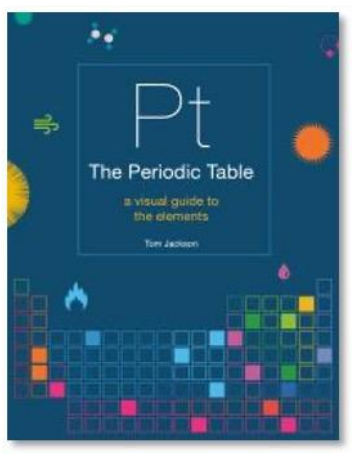
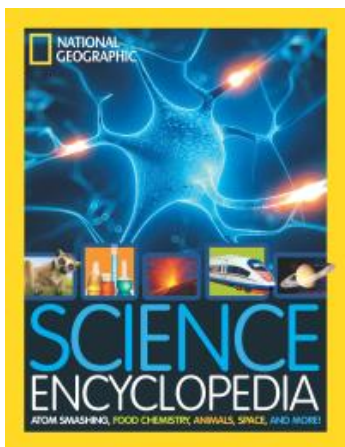
## Before you get started

[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.

## E-Books



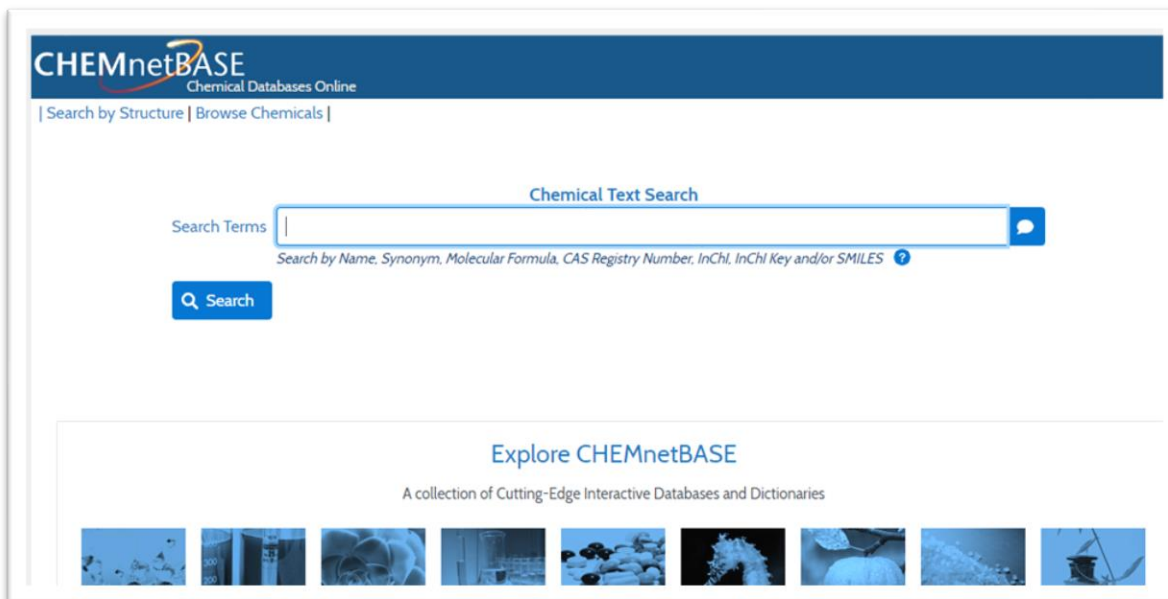
# Atoms and the Periodic Table

Explain how the structure and properties of atoms relate to the organisation of the elements in the periodic table.

- Examining how elements are organised in the periodic table and analysing patterns to discern that elements in the same group of the periodic table have similar properties.
- Investigating the physical properties of some metals and non-metals.
- Using the bohr model of the atom to describe the structure of atoms in terms of electron shells and relating this to their properties and position in the periodic table.
- Deducing that repeating patterns of the periodic table reflect patterns of electrons in outer electron shells.
- Conducting flame tests for a selection of elements and examining emission spectra.
- Examining how the development of the spectroscope led to further development of the model of the atom.

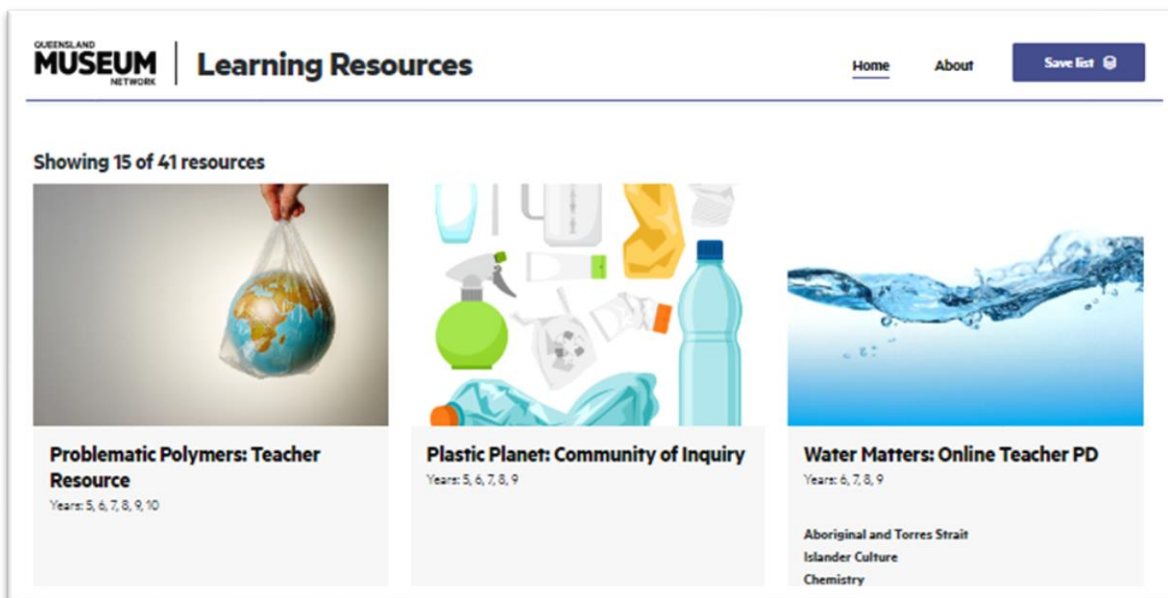
## Featured Databases

[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, it says "CHEMnetBASE Chemical Databases Online" with navigation links for "Search by Structure" and "Browse Chemicals". Below this is a "Chemical Text Search" section with a search input field and a "Search" button. A note below the input field says "Search by Name, Synonym, Molecular Formula, CAS Registry Number, InChI, InChI Key and/or SMILES". Below the search section is an "Explore CHEMnetBASE" section with the text "A collection of Cutting-Edge Interactive Databases and Dictionaries" and a row of eight small thumbnail images representing different chemical resources.

[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 says "Showing 15 of 41 resources". There are three resource cards 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 [Britannica Library](#) has articles, images and more, with a selection of resources especially for teenagers.

The screenshot shows the Britannica Library website interface. At the top, there is a search bar with the text "SEARCH" and a magnifying glass icon. To the right of the search bar are links for "Your Britannica Resources", "Research Tools and Materials", "Help", and "My Britannica". Below the search bar, a large teal banner reads "You searched for 'atoms'" and "DISPLAYING 1 - 10 OF 234 RESULTS.". Underneath the banner, there is a "Reading Level" selector with options 1, 2, and 3, where 2 is selected. To the right of the reading level is an "Advanced Search" link. Below the reading level, there are tabs for "Articles", "Images", "Videos", and "More". The main content area displays two search results. The first result is "atom (matter)" with a star icon and a brief description: "atom | The tiny units of matter known as atoms are the basic building blocks of chemistry. An atom is the smallest piece of matter that has the ...". The second result is "energy (physics)" with a star icon and a sub-section for "Chemical Energy" which states: "All matter is made up of tiny units called atoms. An atom can bond to other atoms to form a group called a molecule. Atoms and molecules are the basic building ...". Below this is a sub-section for "Electrical Energy" which states: "Clearly, the currents can do work and thus possess energy. An electric current is a stream of moving particles or atoms that carry an electrical charge."

[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 website search results for "model of the atom". At the top, there is a search bar with the text "model of the atom" and a magnifying glass icon. To the right of the search bar are links for "Register" and "Log in". Below the search bar, there are links for "Workspace", "Search", "Browse", "Tools", "About", and "Support". The main content area displays "55,538 results" and "Search help". On the left side, there is a "Refine Results" section with "ACCESS TYPE" options: "Everything" (radio button) and "Content I can access" (radio button, selected). Below this is a "SEARCH WITHIN RESULTS" input field. Underneath is a "CONTENT TYPE" section with "Academic content:" options: "Journals (47,205)", "Book Chapters (691)", and "Research Reports (233)". Below this is "Primary source content:". The main content area displays two search results. The first result is "The Atom" by "W. F. G. Swann", a "JOURNAL ARTICLE" from "Proceedings of the American Philosophical Society, Vol. 67, No. 3 (1928), pp. 235-266". It includes a "Download" button, a "Save" button, and a "Cite" button. The second result is "NUCLEAR MODEL OF THE ATOM" by "Chris L. DeWolf", a "JOURNAL ARTICLE" from "The Science Teacher Vol. 59, No. 5 (May 1997), pp. 64-65". It also includes "Download", "Save", and "Cite" buttons.



[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 interface. On the left, there is a 'FILTER BY CATEGORY' sidebar with a tree view of subjects: Biology (91), Chemistry (74), Earth Science (23), Common Core State Standards (213), Next Generation Science Standards (164), and Human Anatomy (35). The main content area displays '22 SEARCH RESULTS' for the query 'Atoms'. Five results are visible, each with a 3D model icon and a brief description:

- Atomic Radius:** Explore the atomic radii of different elements and groups of elements across the periodic table. An atom's radius is a rough measure of its size. Standards: Atoms NGSS-HS-PS1-1, CCSS.ELA-Literacy.RST.9-10.2, CCSS.ELA-Literacy.RST.9-10.5
- Atomic Structure:** Use the Atom Builder to learn about atomic structure. View an atom's protons, neutrons, and electrons. Standards: Atoms NGSS-HS-PS1-1, CCSS.ELA-Literacy.RST.9-10.4, CCSS.ELA-Literacy.RST.9-10.5
- Atomic Number:** Use the Atom Builder to learn about atomic numbers. Select elements across the periodic table to explore how atomic numbers change. Standards: Atoms NGSS-HS-PS1-1, CCSS.ELA-Literacy.RST.9-10.2, CCSS.ELA-Literacy.RST.9-10.4, CCSS.ELA-Literacy.RST.9-10.5
- Atomic Nucleus:** Use the Atom Builder to view the structure of an atom's nucleus. Learn about the particles contained within an atom's nucleus. Standards: Atoms NGSS-HS-PS1-1, CCSS.ELA-Literacy.RST.9-10.2, CCSS.ELA-Literacy.RST.9-10.4, CCSS.ELA-Literacy.RST.9-10.5, NGSS-HS-PS1-8
- Relative Atomic Mass:** Use the Atom Builder to explore relative atomic mass, which is the average total mass of all particles in one atom of an element, expressed in atomic mass units. Standards: Atoms NGSS-HS-PS1-1, CCSS.ELA-Literacy.RST.9-10.4, CCSS.ELA-Literacy.RST.9-10.5

[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. At the top, there is a search bar with the text 'elements, compounds or mixtures' and an 'Advanced Search' button. Below the search bar, the page is titled 'FEATURED ARTICLES (28)'. Three featured articles are displayed, each with a thumbnail image, a title, author information, publication details, and a 'Keyword Preview' button:

- The Secrets of Chinese Medicine:** Authors: Peter Guin and Fritz Hoffmann. Publication: National Geographic Magazine. Jan. 2016. Volume 205, Issue 01. p. 99-100. Article. Found in National Geographic Archive 1995+
- Desperate for a Cure:** Author: Meredith 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+

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