

STATE LIBRARY¹
QUEENSLAND

Year 9 Earth 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.

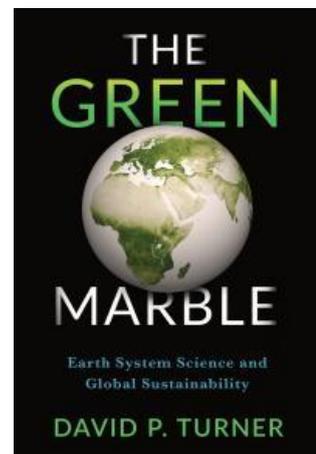
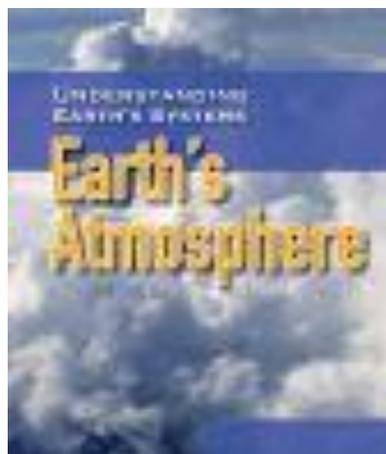
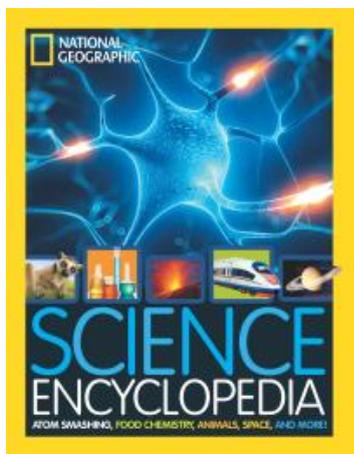
Before you get started

[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



This is an advanced reading resource

The Carbon Cycle

Represent the carbon cycle and examine how key processes including combustion, photosynthesis and respiration rely on interactions between Earth's spheres (the geosphere, biosphere, hydrosphere and atmosphere).

- Identifying Earth as a system, describing Earth's spheres and discussing examples of interactions between different spheres.
- Examining the carbon cycle using diagrams, animations or simulations and explaining the role of photosynthesis and respiration in that cycle.
- Identifying the impact of combustion reactions as a result of human activity on the carbon cycle.
- Investigating the greenhouse effect and relating it to the role carbon dioxide plays in maintaining temperatures that support life on Earth.
- Conducting a field investigation to evaluate carbon sequestration in an ecosystem, such as measuring tree biomass, deadwood, leaf litter and soil depth, and using formulas to calculate approximate carbon storage.
- Investigating how First Nations Australians use fire-mediated chemical reactions to facilitate energy and nutrient transfer through the practice of firestick farming.
- Investigating how First Nations Australians are reducing Australia's greenhouse gas emissions through the reinstatement of traditional fire management regimes.
- Identifying how carbon dioxide is captured and stored naturally or through the use of technologies.
- Calculating an individual's carbon footprint, examining the impact of human activities and suggesting strategies to reduce carbon dioxide emissions.

[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 website interface. At the top, the logo 'OXFORD Reference' is visible on the left, and a search bar is on the right. Below the logo, there are navigation tabs for 'Subject' and 'Reference Type'. The main heading reads 'Oxford Reference Search Results'. On the left side, there is a sidebar with 'Signed in as: State Library of Queensland' and a 'Narrow Your Choices' section with a 'REFINE TERMS' dropdown menu. The main content area shows 'You are looking at 1-20 of 796 entries for: All: carbon cycle'. Below this, there are filters for '796 ENTRIES' and '2 BOOKS', and a 'View' section with 'Items per page: 20' and 'Sort by: Relevance'. The 'OVERVIEW' section for 'carbon cycle' is displayed, with the subject 'Science and technology, Physics' and a brief description: 'A series of nuclear reactions in which four hydrogen nuclei combine to form a helium nucleus with the liberation of energy, two positrons, and two neutrinos. The process is believed to be ...'.

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, the logo 'Britannica Library' is visible on the left, and a search bar is on the right. Below the logo, there are navigation tabs for 'Teens', 'Your Britannica Resources', 'Research Tools and Materials', 'Help', and 'My Britannica'. The main heading reads 'You searched for "carbon cycle"'. Below this, there is a 'Reading Level' section with options 1, 2, and 3, and an 'Advanced Search' link. The main content area shows 'Earth (planet, third from the Sun) - TOP 3 RESULTS. 2 MORE RESULTS IN EARTH.' and a list of related terms: 'Carbon cycle', 'Carbon cycle', 'Earth's Cycles', and 'Biosphere'. The 'Carbon cycle' entry is expanded, showing a brief description: 'Carbon cycle | Carbon makes up only about 0.03 percent of Earth's crust by weight. Its principal form in the atmosphere— carbon dioxide —makes up only about ...'. Below this, there is a 'Natural Occurrence' section with a link to 'greenhouse effect (atmospheric science)'.

[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 interface. At the top, there's a banner with the text 'LE PRESENTS' and 'NATIONAL GEOGRAPHIC' over a background image of elephants. Below the banner is a search bar containing the text 'carbon cycle' and an 'Advanced Search' button. To the right of the search bar are navigation icons for 'Browse Magazines', 'About', 'Explore Topics', and 'Search History'. Below the search bar, it says 'SEARCH RESULTS FOR' followed by 'Content Types' (underlined), 'Featured Articles (2)', and 'Brief Articles (4)'. On the left side, there's a section for 'CONTENT TYPES' with the text 'Keywords: carbon cycle' and a 'Revise Search' button. Below that, it says 'FEATURED ARTICLES (2)'. A featured article is shown with a thumbnail image of a carbon cycle diagram and the title 'The Case of the Missing Carbon'. The authors are listed as 'Tim Appenzeller and Peter Essick', and the publication is 'National Geographic Magazine', dated 'Feb. 2004 p. [88] Article'. It also notes 'Found in National Geographic Archive 1995+'. On the right side, there's a 'FILTER YOUR RESULTS' section with buttons for 'Subjects', 'Publication Title', 'Publication Date', 'Document Type', and 'Search Within'. Below that is a 'TOPIC FINDER' section with the text 'Discover topics and results related to your search' and a 'Start the Topic Finder' button. At the bottom right, there's a 'TERM FREQUENCY' section with a 'Term Frequency' button.

[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 search results page. On the left side, there's a 'FILTER BY CATEGORY' section with a list of categories and their respective counts: Biology (91), Chemistry (74), Earth Science (23), Common Core State Standards (213), Next Generation Science Standards (164), and Human Anatomy (35). Each category has a sub-list of topics with checkboxes. On the right side, there's a '5 SEARCH RESULTS' section. The first result is 'Carbon Family', which includes a 3D model of the periodic table and a description: 'Explore the Interactive Periodic Table by looking at trends in the carbon family of elements.' The second result is 'Respiratory System: Lungs', which includes a 3D model of lungs and a description: 'The lungs are a pair of organs located inside the rib cage. The lungs are the location where the exchange of oxygen and carbon dioxide gases occurs.' The third result is 'Law of Conservation of Mass: Calcium Carbonate', which includes a 3D model of a chemical reaction and a description: 'Balanced equations obey the Law of Conservation of Mass. Use this session as a refresher prior to Balanced Equations and Reactions sessions.' The fourth result is 'Respiratory System: Alveoli', which includes a 3D model of alveoli and a description: 'An alveolus is a tiny air sac located within the lungs. The exchange of oxygen and carbon dioxide takes place within the millions of alveoli in the lungs.' The fifth result is 'Photosynthesis', which includes a 3D model of a plant and a description: 'Photosynthesis is the process by which green plants, algae, and some bacteria capture sunlight and use it to convert carbon dioxide and water into sugars. Plants use these sugars to grow and power their metabolic processes.'

[ProQuest Central](#) brings together 47 databases across 175 subject areas, providing easy intuitive access to an incredibly broad and comprehensive range of content.

The screenshot shows the ProQuest Central interface with a search for "Carbon Cycle". The top navigation bar includes the ProQuest logo and "Access provided by STATE LIBRARY OF QUEENSLAND". The search results page displays "345,702 results". On the left, there are filters for "Sorted by" (set to Relevance), "Limit to" (Full text, Peer reviewed), "Source type" (Scholarly Journals: 656,971; Books: 142; Audio & Video Works: 5; Dissertations & Theses: 24,879; Newspapers: 95,194), and "Publication date" (1903 - 2024 decades). The main results area shows three entries:

- Vegetation distribution and terrestrial carbon cycle in a carbon cycle configuration of JULES4.6 with new plant function** by Harper, Anna B., Wiltshire, Andrew J., Cox, Peter M., Friedlingstein, Pierre, Jones, Chris D., et al. *Geoscientific Model Development: Katlenburg Lindau* Vol. 11, Iss. 7, (2018): 2857-2873. Includes abstract, full text, and PDF (5 MB). Cited 44 times on Web of Science with 46 references.
- Carbon Cycle Uncertainty in REgional Carbon Cycle Assessment and Processes (RECCAP)** by Enting, I. G., Rayner, P. J., Chais, P. *Biogeosciences: Katlenburg-Lindau* Vol. 9, Iss. 8, (2012): 2889. Includes abstract, full text, and PDF (333 KB).
- Coupled modeling of peatlands carbon cycle and carbon dioxide emission from their peat deposits** by Zavalishin, N. N. *IOP Conference Series. Earth and Environmental Science; Bristol* Vol. 1093, Iss. 1, (Sep 2022): 012009. Includes abstract, full text, and PDF (333 KB).

[ProQuest Ebook Central](#) Compiles a library of topic specific ebooks for you to access free through your SLQ membership.

The screenshot shows the ProQuest Ebook Central interface with a search for "carbon cycle". The top navigation bar includes the ProQuest logo, "Ebook Central", and navigation icons for Search, Bookshelf, Profile, and Language. The search results page displays "49445 book results". On the left, there are filters for "Refine your search" including "SORT BY" (Relevance), "RESULTS PER PAGE" (10), "BOOK STATUS" (Owned and subscribed to by my library, Unlimited Print, Copy, & Download, Course Reserve), "YEAR PUBLISHED" (2024: 11, 2023: 769, 2022: 1255), and "SUBJECT" (science / environmental science: 1681, technology & engineering / materials science / general: 1561, business & economics / general: 1239, nature / environmental conservation & protection: 1147). The main results area shows two book entries:

- Geomorphology and the Carbon Cycle** by Evans, Martin. John Wiley & Sons, Incorporated 2022. ISBN: 9781119393214, 9781119393245. SERIES: RGS-IBG Book Series. EDITION: 1. The first systematic examination of the role of geomorphological processes in the cycling of carbon through the terrestrial system. Argues that knowledge of geomorphological processes is fundamental to understanding the ways in which carbon is stored and recycled in the terrestrial environment. Available.
- The Phanerozoic Carbon Cycle : CO₂ and O₂** by Berner, Robert A. Oxford University Press, Incorporated 2004. ISBN: 9780195173338, 9780195346657. The term 'carbon cycle' is normally thought to mean those processes that govern the present-day transfer of carbon between life, the atmosphere, and the oceans. This book describes another carbon cycle. one which operates over millions of years and involves

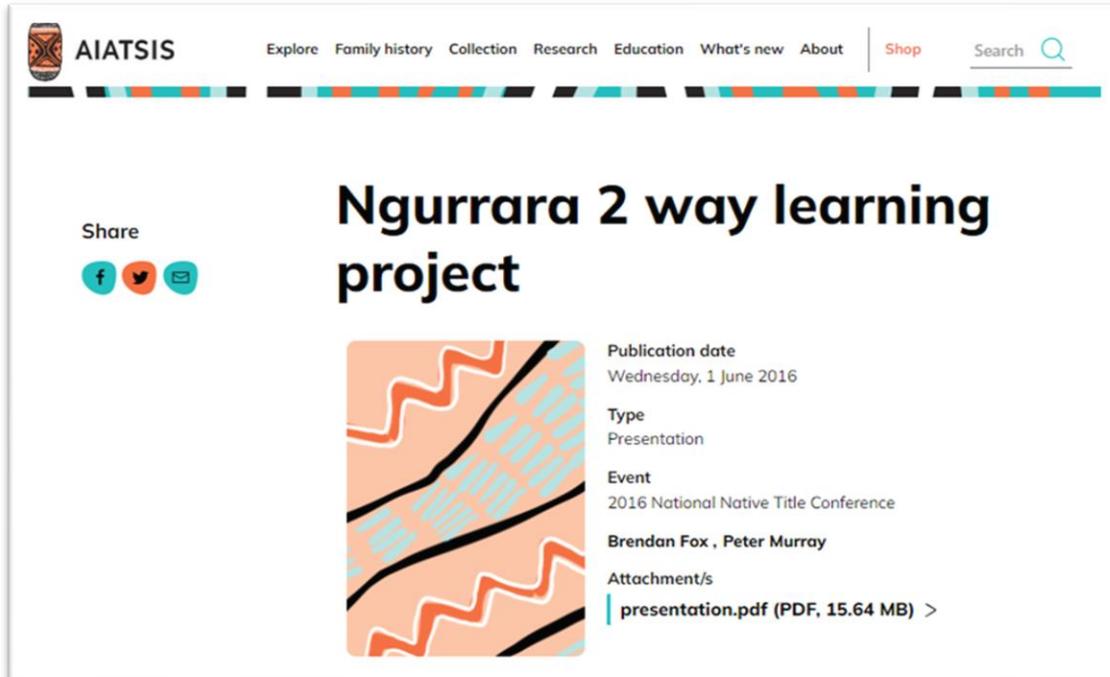
[JSTOR](#) provides access to more than 12 million scholarly journal articles and eBooks, and is especially good for primary sources.

The screenshot shows the JSTOR search results page for the query 'carbon cycle'. The page displays 130,571 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: Journals, Book Chapters, Research Reports; Primary source content: Serials, Documents, Books, Images). The main results area shows two journal articles. The first is 'THE CARBON CYCLE' by Bert Bolin, published in *Scientific American*, Vol. 223, No. 3 (September 1970), pp. 124-135. The second is 'Carbon cycle feedbacks and future climate change' by Pierre Friedlingstein, published in *Philosophical Transactions: Mathematical, Physical and Engineering Sciences*, Vol. 373, No. 2054, Discussion meeting issue: Feedbacks on climate in the Earth system (13 November 2015), pp. 1-14. Each result has a 'Download' button and 'Save' and 'Cite' options.

[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 and the text 'Learning Resources'. There are navigation links for 'Home', 'About', and a 'Save list' button. Below the header, it says 'Showing 15 of 66 resources'. Three resource cards are visible: 'Carnivorous Sponges and Deep Sea Creatures' (Years: 5, 6, 7, 8, 9, 11, 12), 'Project DIG 3D Gallery | Sketchfab' (Years: Early Years, Prep, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, Other), and 'Project DIG | Meet the Megafauna' (Years: Early Years, Prep, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, Other). Each card features a relevant image and the subject 'Biology'.

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.



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](#).