

STATE LIBRARY  
OF QUEENSLAND

# Year 10 Biological Sciences

Unit 1 – Meiosis, Mitosis, Chromosomes and DNA.

Unit 2 – Evolution and Natural Selection.

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.

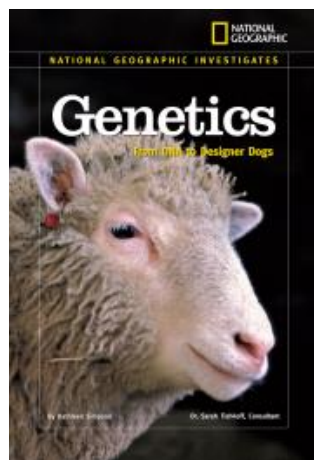
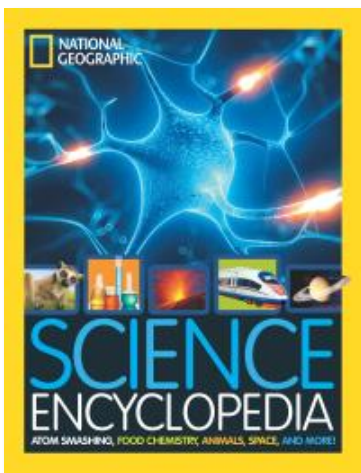
## Before you get started

[Become a member](#) of State Library of Queensland (it's free!).

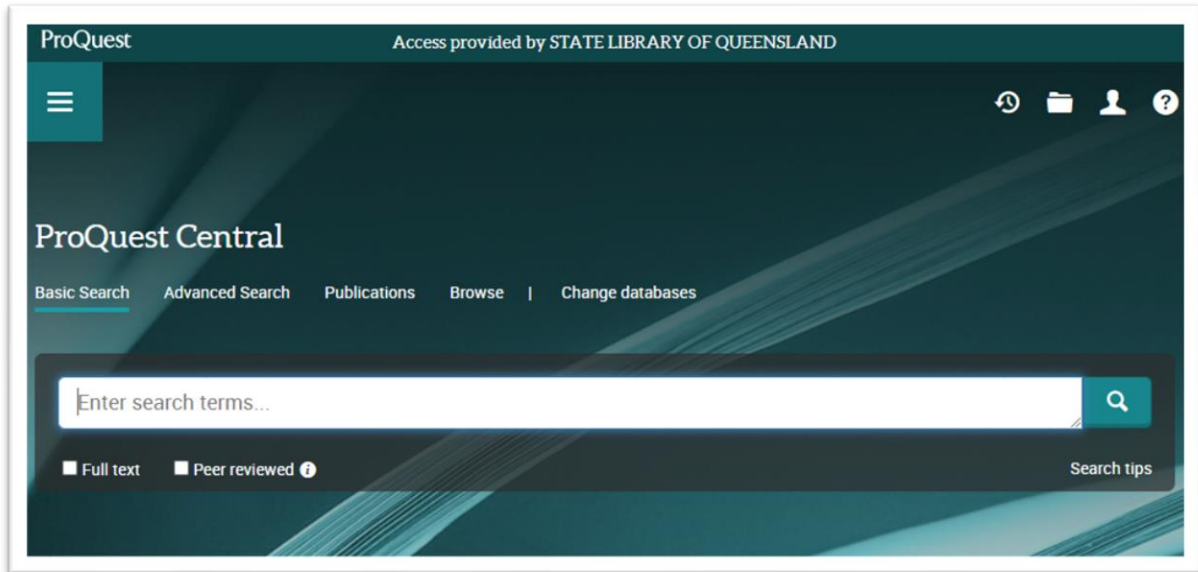
Once you have joined State Library, [log in](#) to your account in One Search so you can use the links in this research guide to access the featured collection items.

You can search our [OneSearch catalogue](#) or begin exploring by clicking on some of the featured items contained in this research guide.

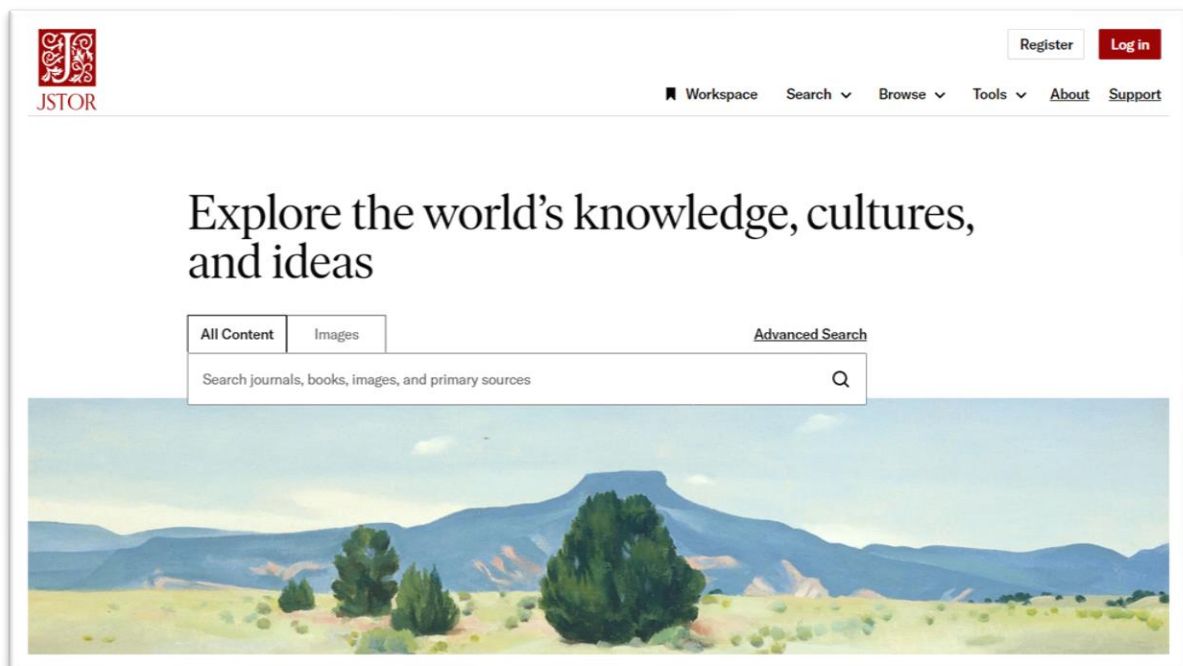
## E-Books



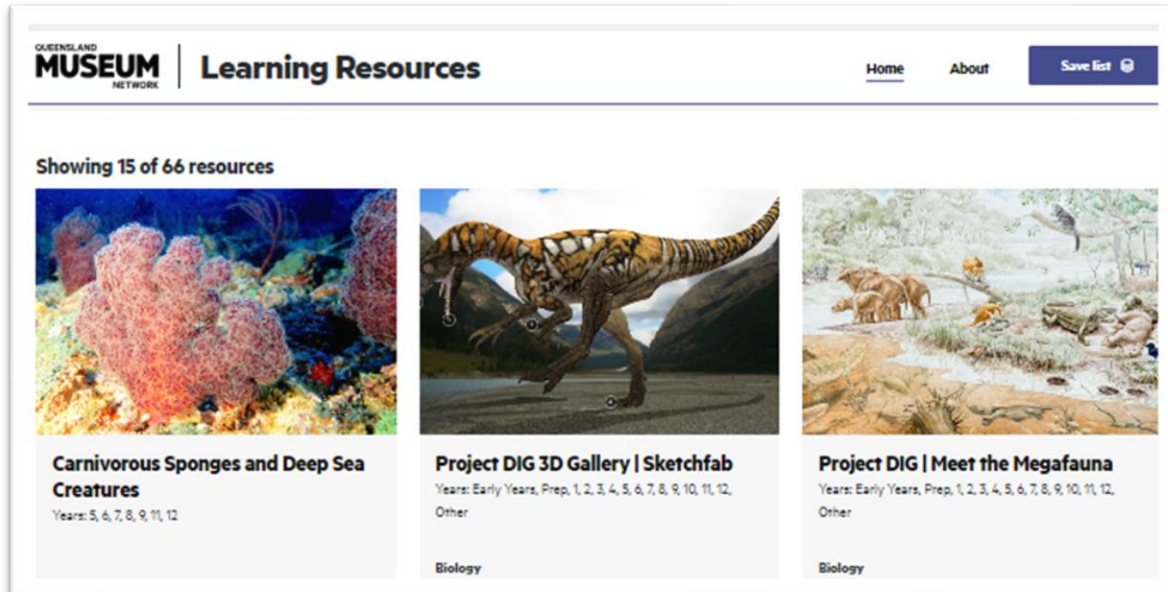
[ProQuest Central](#) brings together 47 databases across 175 subject areas, providing easy intuitive access to an incredibly broad and comprehensive range of content.



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



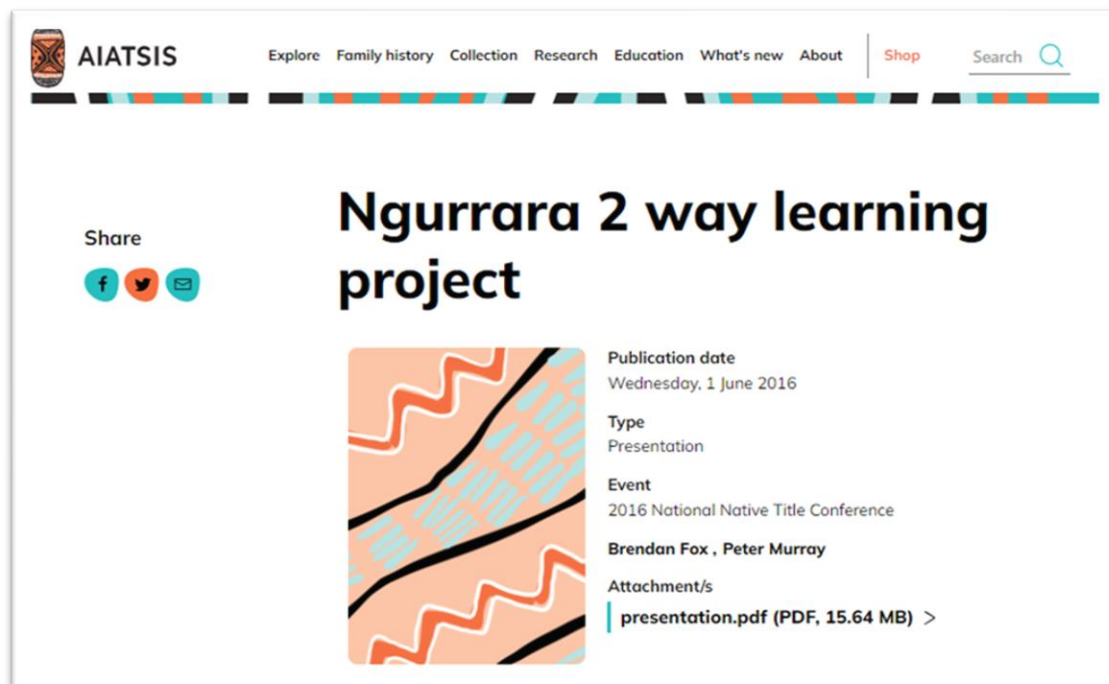
[Queensland Museum](#) provide Learning Resources website students with many activities, fact sheets, images, and videos.



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 66 resources". Three resource cards are displayed:

- 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  
Biology
- Project DIG | Meet the Megafauna**  
Years: Early Years, Prep, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, Other  
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.



The screenshot shows the AIATSIS website. The header includes the AIATSIS logo, navigation links for "Explore", "Family history", "Collection", "Research", "Education", "What's new", "About", "Shop", and a search bar. The main content area features a large heading "Ngurrara 2 way learning project" and a "Share" button with social media icons. Below the heading is a thumbnail image with a wavy pattern. To the right of the image, 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 \(PDF, 15.64 MB\) >](#)

# DNA, Chromosomes and Genetics

Explain the role of meiosis and mitosis and the function of chromosomes, DNA and genes in heredity and predict patterns of Mendelian inheritance.

- Using models and diagrams to represent the relationship between genes, chromosomes, and DNA of an organism's genome.
- Explaining how genetic information passed on to offspring from both parents by meiosis and fertilisation.
- Using Mendelian inheritance to predict the ratio of offspring genotypes and phenotypes in monohybrid crosses involving dominant and recessive alleles or in genes that are sex-linked increases the variation of a species.
- Using pedigree diagrams to show patterns of inheritance of simple dominant and recessive characteristics through multigenerational families.
- Investigating First Nations Australians' knowledges of heredity as evidenced by the strict adherence to kinship and family structures, especially marriage laws.
- Exploring environmental and other factors that cause mutations and identifying changes in DNA or chromosomes.
- Exploring the role of DNA in cancer or genetic disorders such as haemochromatosis, sickle cell anaemia, cystic fibrosis or Klinefelter syndrome.

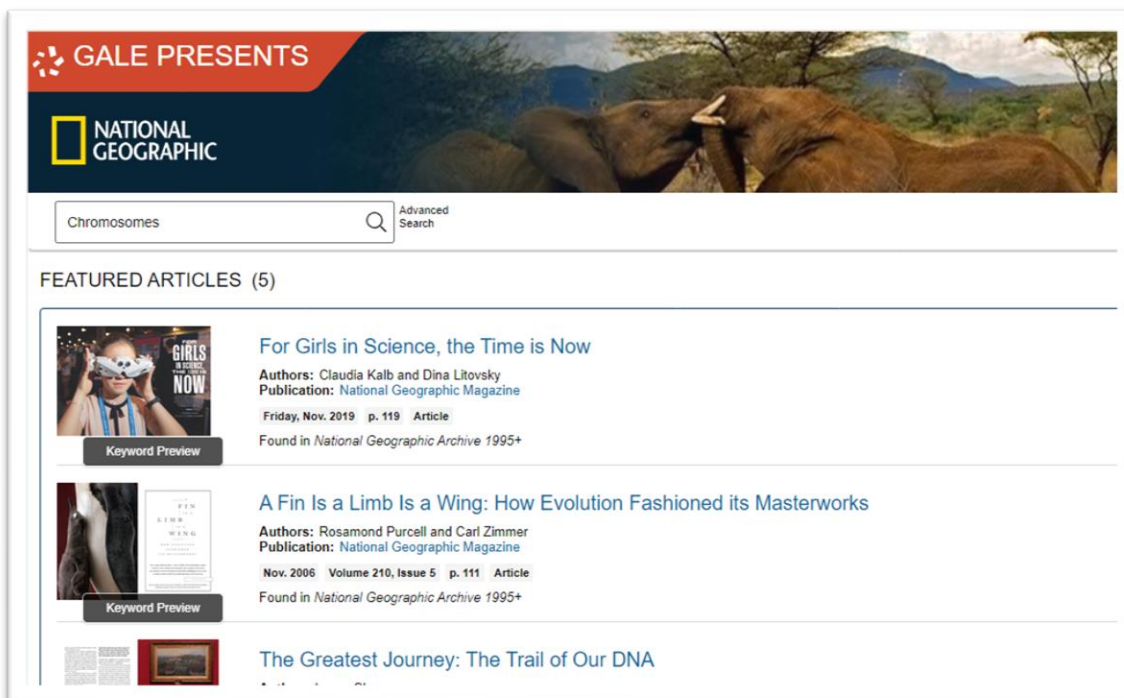
[Oxford Reference](#) spans 25 different subject areas, bringing together 2 million digitised entries across Oxford University Press's dictionaries, companions, and encyclopedias.

The screenshot shows the Oxford Reference search results page. At the top, there are navigation tabs for 'Subject' and 'Reference Type', along with 'My Content (0)' and 'My Searches (3)'. The main heading is 'Oxford Reference Search Results'. On the left, a sidebar indicates the user is signed in as 'State Library of Queensland' and offers options to 'Sign in to an additional subscriber account' and 'Narrow Your Choices'. The search results section shows 'You are looking at 1-20 of 4,371 entries for: All: Chromosomes'. A suggestion 'Did you mean chromosome' is provided with a 'clear all' link. Below this, there are controls for 'View', 'Items per page' (set to 20), and 'Sort by' (set to Relevance). The main content area is titled 'OVERVIEW' for 'chromosome', with the subject 'Science and technology, Life Sciences'. It lists two definitions: '1. in prokaryotes, the circular DNA molecule containing the entire set of genetic instructions essential for life of the cell. See genophore. 2. in the eukaryotic nucleus, one ...'. At the bottom, there is an 'Oxford' logo and the text 'A Dictionary of Sociology (4 ed.)' and a 'Quick reference' link.

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

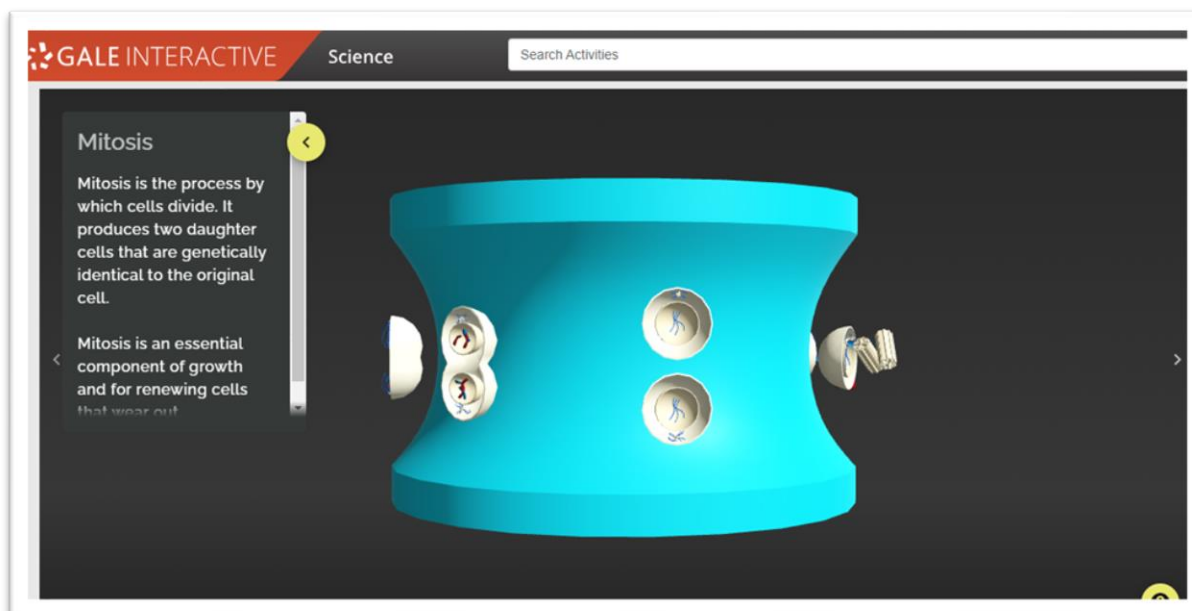
The screenshot shows the Britannica Library search results page. The top banner reads 'You searched for "chromosomes AND meiosis AND mitosis"'. Below this, it says 'DISPLAYING 1 - 10 OF 23 RESULTS.'. There are navigation icons for '+', '-', and 'Advanced Search'. A 'Reading Level' selector shows levels 1, 2, and 3, with level 3 selected. Below the reading level, there are tabs for 'Articles', 'Images', 'Videos', and 'More'. The first result is 'chromosome (biology)', with a brief definition: 'chromosome | the microscopic threadlike part of the cell that carries hereditary information in the form of genes. A defining feature of any chromosome is ...'. The second result is 'meiosis (cytology)', with a brief definition: 'meiosis | also called reduction division division of a germ cell involving two fissions of the nucleus and giving rise to four gametes, or sex cells, ...'. At the bottom, there is a section for 'images related to this search:' with three image thumbnails and a 'See all images' link.

[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.



## Science

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





[Gale Health and Wellness](#) provides access to trusted medical reference materials including journals, pamphlets, and health-related videos and articles from over 2,200 publications.

The screenshot shows the Gale Health and Wellness search interface. At the top, the search bar contains the term "genes" and the "Advanced Search" option is visible. Navigation icons for "Browse Topics", "Search History", "Get Link", and "Highlights And More" are present. The main content area displays "Showing results for" followed by a grid of content types: Reference (1,090), Magazines (166,813), Videos (180), Images (61), Audio (583), News (299,741), and Academic Journals (142,217). Below this, the "Full Content Types" section includes search terms and filters, with "Full Text" selected. The "Filter Your Results" section offers options for Subjects, Publication Title, Document Type, Publication Date, Sections, and Search With. A list of filters includes "Full Text Documents" (checked), "Document Contains Images", "Consumer Health", "En Español", and "Peer-Reviewed Journals". The "Topic Finder" section is also visible, with a "Start the Topic Finder" button. The search results for "Gene Therapy" are displayed, including authors (Katherine Hunt, Teresa G. Odle, and L. Lee Culvert), source (The Gale Encyclopedia of Neurological Disorders, Vol. 2, 4th ed.), date (2023), word count (3,771 words), and a link to "Topic overview". A brief description of gene therapy is provided.

# Evolution and Natural Selection

Use the theory of evolution by natural selection to explain past and present diversity and analyse the scientific evidence supporting the theory.

- Outlining processes involved in natural selection including variation, isolation and selection.
- Examining biodiversity as a function of evolution.
- Analysing evidence for the theory of evolution by natural selection including the fossil record, chemical and anatomical similarities, and geographical distribution of species.
- Investigating changes caused by natural selection in a particular population as a result of a specified selection pressure such as artificial selection in breeding for desired characteristics.
- Relating genetic characteristics to survival and reproductive rates.
- Investigating some of the structural and physiological adaptations of first nations australians to the australian environment.

[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 interface. At the top, there are navigation tabs for 'Subject' and 'Reference Type', along with 'My Content (0)' and 'My Searches (0)'. The main heading is 'Oxford Reference Search Results'. On the left, a sidebar indicates the user is signed in as 'State Library of Queensland' and offers options to 'Narrow Your Choices' and 'REFINE TERMS'. The search query is 'All: evolution AND "natural selection"'. The results show 779 entries and 3 books. The first result is 'Constraints on Adaptation', an Overview Page about natural selection. The second result is 'non-Darwinian evolution', also an Overview Page. The interface includes filters for 'BY AVAILABILITY' and 'Items per page' (set to 20).

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

The screenshot displays the Britannica Library search results for the query 'natural selection AND evolution'. The header shows 'You searched for "natural selection AND evolution"' and 'DISPLAYING 1 - 10 OF 65 RESULTS.'. Below the header, there are filters for 'Reading Level' (1, 2, 3) and an 'Advanced Search' option. The results are categorized under 'Articles', 'Images', and 'Videos'. The top result is 'evolution (scientific theory)', which includes sub-articles like 'Natural Selection Directs Evolution', 'Genetic Factors in Evolution', and 'Rates of Evolutionary Change'. Each sub-article has a brief introductory text starting with 'evolution | People have always wondered how life originated and how so many different kinds of plants and animals arose. Stories of a supernatural creation ...'.

[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 keyword 'Evolution'. The page features a search bar with the text 'Evolution' and a magnifying glass icon. Below the search bar, there are three featured articles, each with a thumbnail image, a title, author information, publication details, and a 'Keyword Preview' button. The articles are:

- Return to the Cave of Bones**  
Author: Robert Clark  
Publication: National Geographic Magazine  
Saturday, July 2023 Volume 244, Issue 01 p. 68 Article  
Found in National Geographic Archive 1995+
- What Are They Thinking?**  
Author: Yudhijit Bhattacharjee  
Publication: National Geographic Magazine  
Saturday, Oct. 2022 Volume 242, Issue 04 p. [35] Article  
Found in National Geographic Archive 1995+
- Up the Mountain, to a World Apart**  
Authors: Mark Synnott and Renan Ozturk  
Publication: National Geographic Magazine  
Friday, Apr. 2022 Volume 241, Issue 04 p. 37-38 Article  
Found in National Geographic Archive 1995+

At the bottom of the featured articles section, there is a button that says 'View All 127 Featured Articles'.

[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 for the keyword 'Human Evolution'. The page features a search bar with the text 'Human Evolution' and a magnifying glass icon. Below the search bar, there are search results for 'Human Evolution', including a thumbnail image, a title, a description, and a list of standards. The standards listed are: Zoology, Paleontology, NGSS-HS-LS4-1, NGSS-HS-LS4-2, NGSS-HS-LS4-4, and CCSS.ELA-Literacy.RST.9-10.4. On the left side of the page, there is a 'FILTER BY CATEGORY' section with a list of categories and their respective counts:

- Biology (91)
  - Cells (13)
  - Botany (14)
  - Ecosystems (4)
  - Microbiology (23)
  - Paleontology (8)
  - Zoology (31)
- Chemistry (74)
  - Atoms (18)
  - Chemical Equations (10)
  - Chemical Reactions (15)
  - Molecules and Compounds (12)
  - Periodic Table (19)
- Earth Science (23)
  - Astronomy (12)
  - Geology (11)
- Common Core State Standards (213)
- Next Generation Science Standards (164)
- Human Anatomy (35)
  - Circulatory System (5)

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