

Trusted by more colleges and universities than any other general reference resource

Britannica Academic User Guide

- For Students and Researchers -

Features

How-tos

Navigation



Britannica[®] ACADEMIC

©2019 Encyclopaedia Britannica, Inc.

Welcome to Britannica Academic



Britannica Academic provides all the essentials for conducting thorough research - all from one site.

It delivers fast and easy access to high-quality, comprehensive information. The rich combination of the respected Encyclopædia Britannica plus Merriam-Webster's Collegiate Dictionary, magazines and periodicals, and many other research tools provides the variety of reliable sources that students need to consult when conducting thorough collegiate research.

Written by Nobel laureates, historians, curators, professors, and other notable experts, Britannica Academic's articles provide trusted information with balanced, global perspectives and insights that users will not find anywhere else.

Here's a guided tour of Britannica Academic's best features, navigation and FAQs.

Home Page

The screenshot shows the Britannica Academic homepage with a dark blue header. The main content area is white with various sections. Callout boxes are overlaid on the page, connected by lines to specific features.

Click our Britannica Academic logo to Return to Academic Homepage.

World Atlas is a geographical tool that lets you explore statistics and related content for countries around the world (page 3).

Keep on top of daily New & Revised Articles.

Stay updated with global headlines using our daily News Feeds from BBC News and other major media outlets.

Click to access different types of content or perform a key word search.

Browse Content by category using Article and Media Browse (page 2).

Discover the similarities and differences between any 2 countries using the Compare Countries tool (page 3).

Access digital transcripts of letters, speeches, historical documents and other primary source material by clicking on any of the Recommended Primary Sources.

Home Page Content:

- Header:** Britannica ACADEMIC, Help, Sign in to My Research
- Search Bar:** What are you researching today? (Advanced Search)
- Navigation:** ARTICLES, DICTIONARY, PRIMARY SOURCES, JOURNALS / PERIODICALS
- Content Browse:** ARTICLE BROWSE, MEDIA BROWSE, BIOGRAPHIES
- RESEARCH TOOLS:**
 - World Atlas:** Search thousands of maps, flags, articles and statistics in this interactive World Atlas.
 - Compare Countries:** A unique geography tool that gives you quick facts and statistics on any two countries side-by-side.
- ON THIS DAY:**
 - The Atomic Age Begins:** In 1945 the United States tested the first atomic bomb near Alamogordo, N.M., and the following month dropped atomic bombs on Hiroshima and Nagasaki in Japan, hastening the end of World War II. (Read more)
- INTRODUCING MY RESEARCH!** Create a personal account to save, organize and annotate your favorite content and media. (Login / Register)
- NEW AND UPDATED ARTICLES:** (VIEW MORE)
 - July 17, 2018:
 - pteridophyte
 - Adrian Piper
 - Hatoyama Yukio
 - Rush Limbaugh
 - Sacha Baron Cohen
 - Jet Li
 - Lisa Ling
- RECOMMENDED PRIMARY SOURCES:** Find letters, speeches, and other primary source material.
 - Declaration of the Rights of Man
 - Niccolò Machiavelli's The Prince
 - Jonathan Swift's A Modest Proposal
 - Marshall Plan
 - Thucydides' History of the Peloponnesian War
 - The United Nations' Universal Declaration of Human Rights
 - Egyptian Book of the Dead
- NEWS FROM NEW YORK TIMES:**
 - Trump, at Putin's Side, Questions U.S. Intelligence on 2016 Election
 - After the Summit, the News Conference
 - Putin Says Democrats Are to Blame for 'Manipulations' of Their Party
 - news analysis: Trump Sheds All Notions of How a President Should Conduct Himself Abroad
 - Republicans Rebuke Trump for Siding With Putin as Democrats Demand Action
- BRITANNICA CONTRIBUTORS:** Britannica's contributors include eminent scholars, experts, Nobel laureates, and world leaders, such as:
 - Bill Clinton (Former President of the United States)
 - Desmond Tutu (South African Anglican Cleric)
 - Brian R. Greene (Professor of Physics and of Mathematics, Columbia University)
 - Judith L. Fridovich-Keil (Professor in the Department of Human Genetics, Emory University School of Medicine)
- NEWS FROM BBC NEWS:**
 - Millions to face hosepipe ban in north-west England
 - Brexit: Government scrapes through Customs Bill votes
 - Trump-Putin summit: US president under fire over poll meddling comments
 - Some slime toys have 'potentially unsafe levels' of boron - Which?
 - Kilauea volcano: Flying lava injures 23 in Hawaii

Browse Articles and Media

Articles Media Biographies

Articles



Clicking on [Article Browse](#) or [Media Browse](#) from the Homepage will let you delve into the contents of Britannica Academic by [topic](#) and [subtopics](#).

Articles Media Biographies

ERA
Click to select an era...


NATIONAL/CULTURAL ASSOCIATION
Click to select an association...


KNOWN FOR
Click to select an activity...


GENDER
☐ male
☐ female
[Clear All Filters](#)

DISPLAYING 1 - 10 OF 34,241 RESULTS.

Aakjær, Jeppe
(born Sept. 10, 1866, Aakjær, Den.—died April 22, 1930, Jenle), poet and novelist, leading exponent of Danish regional literature and of the literature of social

 **Aaliyah**
American rhythm and blues singer and actress (born Jan. 16, 1979, Brooklyn, N.Y.—died Aug. 25, 2001, Abaco Islands, The Bahamas), was considered on the verge of

 **Aalto, Alvar**
(born Feb. 3, 1898, Kuortane, Fin., Russian Empire—died May 11, 1976, Helsinki, Fin.), Finnish architect, city planner, and furniture designer whose international reputation

 **Aaron**
(flourished 14th century bce), the traditional founder and head of the Israelite priesthood, who, with his brother Moses, led the Israelites out of Egypt. The figure of

Click on the [Biographies](#) tab to search and browse biographies of famous people by gender, era, cultural association and their field of expertise using [Explore Biographies](#). You can also navigate via the [Biographies](#) link on the Homepage.

Interactive World Atlas

You're viewing: **Asia > India**

Learn more about this place:

- Summary
- Profile
- Related

India

Official name: Bharat (Hindi); Republic of India (English)

Form of government: multiparty federal republic with two legislative houses (Council of States [245¹]; House of the People [545²])

Head of state: President: Ram Nath Kovind

Head of government: Prime Minister: Narendra Modi

Capital: New Delhi

Official languages: Hindi; English

Official religion: none

Monetary unit: Indian rupee Rs³

Population: (2017 est.) 1,342,550,000

Total area (sq mi): 1,222,550

Total area (sq km): 3,166,391

Urban-rural population: Urban: (2015) 32.7% Rural: (2015)

Life expectancy at birth: Male: (2010–2014) 66.4 years Female: (2010–2014) 68.4 years

Literacy: percentage of population age 15 and over: Male: (2007) 76.9% Female: (2007) 72.9%

India

country that occupies the greater part of the Indian subcontinent. It is a constitutional republic consisting of 29 states, each with a substantial control over its own affairs;...

TOP 3 RESULTS: 172 MORE RESULTS IN INDIA.

Mahatma Gandhi

(born October 2, 1869, Porbandar, India—died January 30, 1948, Delhi), Indian lawyer, politician, social activist, and writer who became the leader of the nationalist movement against the British rule of India.

Alexander the Great

(born 356 bce, Pella, Macedonia [northwest of Thessaloniki, Greece]—died June 13, 323 bce, Babylon [near Al-Hillah, Iraq]), king of Macedonia (336–323 bce), who overthrew the Persian Empire.

Tendulkar on Gandhi

Dinanath Gopal Tendulkar first published his eight-volume biography of Mohandas Karamchand Gandhi, Mahatma, in 1951–54. He published a revised and expanded edition in...

World Atlas is a geographical tool that lets you explore statistics and related content for countries around the world. Use the [Search box](#) to research any country or region of interest.

Click on [Summary](#) to access the country article. Click on [Profile](#) to find current statistical information. Click on [Related](#) to locate other recommended Britannica content.

Compare Countries

Stats **Articles & Media**

Australia Canada

Australia **Canada**

Official name(s): Commonwealth of Australia Canada

Form of government: federal parliamentary state (formally a constitutional monarchy) with two legislative houses (Senate [76]; House of Representatives [150]) federal multiparty parliamentary state with two legislative houses (Senate [105^{1,2}]; House of Commons [338])

Executive Branch: (Head of state) British Monarch: Queen Elizabeth II, represented by Governor-General: Sir Peter John Cosgrove (Head of government) Prime Minister: Malcolm Turnbull (Head of state) Queen of Canada (British Monarch): Elizabeth II, represented by Governor-General: Julie Payette (Head of government) Prime Minister: Justin Trudeau

Capital(s): Canberra Ottawa

Language: none¹ (official language) none (official religion)

Religion: none (official religion)

Monetary unit(s): Australian dollar (\$) Canadian dollar (C\$)

Population: (2017 est.) 24,503,000 (2017 est.) 37,708,000

Area: 2,969,976 (sq mi) 7,692,202 (sq km) 9,984,670 (sq mi) 25,968,035 (sq km)

Urban-rural population: Urban: (2014) 89.3% Rural: (2014) 10.7% Urban: (2014) 81.5% Rural: (2014) 18.5%

Life expectancy at birth: Male: (2016) 79.8 years Female: (2016) 84.8 years Male: (2016) 79.8 years Female: (2016) 84.8 years

Literacy: percentage of population age 15 and over: Male: not available Female: not available Male: not available Female: not available

GNI per capita (U.S.\$): (2016) 54,420 (2016) 41,400

Article: the smallest continent and one of the largest countries on Earth, lying between the Pacific and Indian oceans in the Southern Hemisphere. Australia's capital is Canberra.... second largest country in the world in area (after Russia), occupying roughly the northern two-fifths of the continent of North America. Despite Canada's great size, it is...

Images:

Videos:

Discover the similarities and differences between any 2 countries using the [Compare Countries](#) tool.

Features of an Article

Britannica

ACADEMIC

Search

Help

Sign In to My Research

artificial intelligence (AI)

Article

Images & Videos

Related

Article History

[+] Expand All

- Introduction
- What is intelligence?
- Methods and goals in AI
- Alan Turing and the beginning of AI
- Early milestones in AI
- Expert systems
- Connectionism
- Nouvelle AI
- Is strong AI possible?
- Additional Reading

Alternate titles: AI, intelligence, artificial intelligence

Introduction

Artificial intelligence (AI), the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, cover meaning, generalize, or learn from past experience. Since the development of the digital computer in the 1940s, it has been demonstrated that computers can be programmed to carry out very complex tasks—as, for example, discussing proofs for mathematical theorems or playing chess—with speed and memory capacity, there are now many tasks requiring much everyday levels of human experts and machines. In this limited sense is found in speech or handwriting recognition.

great proficiency. Still, despite continuing advances, there are as yet no programs that can match human knowledge. On the other hand, some programs have shown professionals in performing certain specific tasks, such as medical diagnosis.

What is intelligence?

All but the simplest human behaviour is also animal behaviour is never taken as an indication of intelligence. When the digger wasp, *Sphex ichneumoneus*, crosses the threshold, checks for intruders inside her burrow. The real nature of the wasp's instinctual behaviour is displaced. Intelligence—conspicuously absent in the case of *Sphex*—must include the ability to adapt to new circumstances.

Table of Contents

- Introduction
- What is intelligence?
- Methods and goals in AI
- Alan Turing and the beginning of AI
- Early milestones in AI
- Expert systems
- Connectionism
- Nouvelle AI
- Is strong AI possible?
- Additional Reading

Adjust the Text Size for easier reading. Increase text size by clicking "+" and reduce text size by clicking "-".

Jump to any part of an article by clicking on a subtopic link in the Table of Contents.

How do you save images and videos?

The diagram illustrates the location of various icons in the My Research interface. On the left, a vertical toolbar contains icons for saving, copying, and downloading. On the right, a vertical toolbar contains icons for favorite, printer, email, and sharing. Callout boxes provide instructions for each icon:

- Save Images:** Click to [Save Images](#) to your My Research account.
- Copy URL:** Click to copy media [URL](#).
- Download:** Click to [Download](#) a video onto your computer.
- Print:** Click printer icon to [Print](#) images, if available.
- Email:** Click to [Email](#) media to your preferred mailbox.



spores, and reaction to the Gram stain are important. Morphological features, including the shape and colour of bacterial colonies, are not always constant and can be influenced by environmental conditions. Important in the identification of a genus and species of bacteria are biochemical tests, including the determination of the kinds of nutrients a cell can use, the products of its metabolism, the response to specific chemicals, and the presence of particular characteristic enzymes. Other criteria used for the identification of some types of bacteria might be their antigenic composition, habitat, disease production, and requirement for specific nutrients. Some tests are based on the ultrastructure of the bacteria revealed under the [electron microscope](#) by negative staining and preparation of thin sections.

Robert J. Kadner

Kara Rogers

Additional Reading

A comprehensive survey of the vast array of bacterial species is presented in GEORGE M. GARRITY et al. (eds.), *Bergey's Manual of Systematic Bacteriology*, 5 vol., 2nd ed. (2001–12), a reference and sourcebook accepted as standard throughout the world for classification of bacteria and related microorganisms. Advanced textbooks covering all general characteristics of microorganisms—including morphology, physiology, biochemistry, ecological role, and classification—are MICHAEL T. MADIGAN et al., *Brock Biology of Microorganisms*, 14th ed. (2015); JOANNE M. WILLEY, LINDA M. SHERWOOD, and CHRISTOPHER J. WOOLVERTON, *Prescott's Microbiology*, 10th ed. (2015); and LUCY SHAPIRO and RICHARD LOSICK (eds.), *Cell Biology of Bacteria* (2011).

THOMAS D. BROCK, *The Emergence of Bacterial Genetics* (1990), describes the historical development of bacterial genetics and molecular biology. Additional coverage of the molecular and genetic features of bacteria is found in LARRY SNYDER et al., *Molecular Genetics of Bacteria*, 4th ed. (2013). CLIVE EDWARDS (ed.), *Microbiology of Extreme Environments* (1990); and CHARLES GERDAY and NICOLAS GLANDORFF (eds.), *Physiology and Biochemistry of Extremophiles* (2007), are detailed explorations of microorganisms that live in extreme environments.

Bacteria in the human body and their role in human health and disease are discussed in JULIAN MARCHESI (ed.), *The Human Microbiota and Microbiome* (2014).

Robert J. Kadner

EB Editors

Article Contributors



Article Contributors

Kara Rogers - Kara Rogers is the senior editor of biomedical sciences at Encyclopædia Britannica. She holds a Ph.D. in pharmacology and toxicology from the University of Arizona. Rogers writes for various publications on topics ranging from medicine and genetics to animals and nature. She is the author of *Out of Nature: Why Drugs from Plants Matter to the Future of Humanity* (The University of Arizona Press, 2012) and *The Quiet Extinction: Stories of North America's Rare and Threatened Plants* (The University of Arizona Press, 2015). Rogers is a member of the National Association of Science Writers.

Robert J. Kadner - Professor of Microbiology, School of Medicine, University of Virginia, Charlottesville. Coauthor of *Essentials of Medical Microbiology*.

Scroll to the end of an article to see our suggestions for [Additional Reading](#) and research references.

Verify the source by clicking to see a list of Article Contributors and a short abstract about their accreditations in the subject matter.

Research Tools



How do you conduct a full search?

Bacteria



Advanced Search

ARTICLES DICTIONARY PRIMARY SOURCES JOURNALS / PERIODICALS

1. Type keywords or phrases into the search box, e.g. "bacteria" and press enter.

2. Click each icon to filter results by a content type, e.g. Articles, Images, Videos, Dictionary Journals/Periodicals, Primary Sources/E-books or Year in Review.

4. Select from the search results or refine your search using [Advanced Search](#) (See over page).



ARTICLES

IMAGES

VIDEOS

DICTIONARY

JOURNALS / PERIODICALS

WEB'S BEST SITES

PRIMARY SOURCES / E-BOOKS

YEAR IN REVIEW

Didn't find what you're looking for?

Try Advanced Search

You searched for "Bacteria"

DISPLAYING 1 - 10 OF 883 RESULTS.

[VIEW YOUR SEARCH IN ImageQuest](#)

bacteria

bacteria | singular bacterium any of a group of microscopic single-celled organisms that live in enormous numbers in almost every environment on Earth, ...

food preservation

TOP 3 RESULTS. 5 MORE RESULTS IN FOOD PRESERVATION.

Bacteria

Bacteria | **Bacteria** are unicellular organisms that have a simple internal structure compared with the cells of other organisms. The increase in the number ...

Dehydration

As a result of advances made during World...vegetables, skim milk, potatoes, soup mixes, and meats. Pathogenic (toxin-producing) **bacteria** occasionally withstand the ...

Pasteurization

Equivalent conditions capable of...15 seconds. When the pH of a food is greater than 4.5, the heat treatment must be severe enough to destroy pathogenic **bacteria**.

IMAGES RELATED TO THIS SEARCH



[SEE ALL IMAGES](#)

infectious disease

Bacteria | **Bacteria** can survive within the body but outside individual cells. Some **bacteria**, classified as aerobes, require oxygen for

🔍 How do you conduct an advanced search?

Advanced Search lets you refine your search results using parameters. You can fill out one or more of the advanced search parameters available (below). Britannica's search engine will look for content that matches ALL of the parameters that you specify. E.g. The following Advanced Search query will only find content that contains:

The diagram illustrates the Advanced Search interface with various parameters and their corresponding search results. The parameters are listed on the left, and the search results are shown in a table on the right. The parameters are:

- All of these words, and;
- Any one of these words, and;
- All of these words near each other.

The search results table is as follows:

Parameter	Search Results
with all the words	Renaissance literature
with the exact phrase	literary genres
with any of these words	Petrarch, Machiavelli, Ariosto
without these words	Shakespeare
with these words near each other	humanist, philosophy

Additional annotations on the right side of the diagram include:

- This entire phrase, and;
- None of these words, and;

☑ How do you use the Citation Tool?

The diagram illustrates the workflow for using the Citation Tool. It shows a screenshot of the 'Cite' popup window and a generated citation text.

1. Click "Cite" icon in the toolbar to open the Cite popup window. Then select your preferred standard citation style from the drop-down menu.

2. Highlight and copy the generated citation text. Paste into another document as required.

The screenshot shows the 'Cite' popup window with the following text:

Cite

While every effort has been made to follow citation style rules, there may be some discrepancies. Please refer to the appropriate style manual or other sources if you have any questions.

Select citation style

MLA
MLA
APA
Harvard
Chicago Manual of Style

The generated citation text is:

Bacteria 2018, *Britannica Academic*. Retrieved 3 August 2018, from <https://academic.eb.com/levels/collegiate/article/bacteria/110416#>

🔧 How do you use the Britannica Academic toolbar?

The diagram illustrates the Britannica Academic toolbar with various icons and their corresponding functions. The toolbar icons are:

- Send to Favourites or shared via Email.
- Print full article.
- Generate a Citation for the resource.
- Translate full article.
- Have the article read aloud to you by Text to Speech.
- Click to Enlarge Text Size.
- Click to Reduce Text Size.

My Research



How do you create a My Research account?

1. Click **Sign in to My Research** found in the top right corner of any page.

2. In the pop-up, click **Create an account**. You can also sign in with your **Google Account** if you have one.

Sign In

Sign in with Google

or

Username

Password

Sign In

Create an account.
Forgot your username or password?

Create Account

All fields are required.

MyUsername

Username must be 4 to 100 characters.

Password must be 4 to 22 characters

hello@myuni.edu

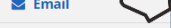
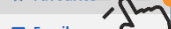
Create Account

3. In the new window, enter your details, then **Create Account**.



How do you add content to My Research?

Favorite



1. Click the **Star** in the Media Gallery to add an image or video to My Research.

1. Click the **Arrow** in the article tool bar, then select "favourite" to add an article to My Research.

★ Item added to favourites.

You can also:

Add this to an existing Resource Pack:

Select resource packs...

Create a new Resource Pack and add this item:

Bacteria Project

Create

2. When prompted, you can select to save the item to an existing **Resource Pack** or create a new pack by entering a pack (or folder) name.



How do you organise your content?

Click to see all your **Saved Content**.

Create New Pack.

To organise your items, **Drag and Drop** any saved content over into a resource pack on the left.

My Content

Welcome, Willa Wei

★ All Favourites
25 items

Create a new resource pack!
What are Resource Packs?

Bacteria Project
2 items
Indonesia
0 items
World War II: Australia
11 items
Aboriginal - people, history and culture
11 items

★ Favourites and Resource Packs

Bacteria Project

Rename Pack | Delete Pack | Email Pack | Share Pack

In this pack: 1 Video, 1 Article

Edit / Add Content

Filter by content type:



bacteria

VIDEO

Special staining and imaging techniques were used to create these photographs of bacteria (yellow) and phagocytes (red).

Video on Bacteria staining - see reference for more sources



bacteria

ARTICLE

any of a group of microscopic single-celled organisms that live in enormous numbers in almost every environment on Earth, from deep-sea vents to deep below Earth's surface to...

Good introductory notes on Bacteria strains

Click on **My Content** in the top right corner of every page to go to My Britannica portal.

Share your packs via a generated link or email.

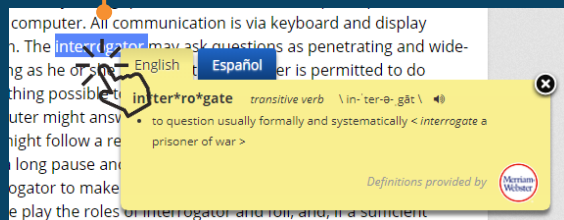
Click to **Filter** your content by type e.g. images.

Add **Notes** to your saved content.

English as a Foreign Language Support

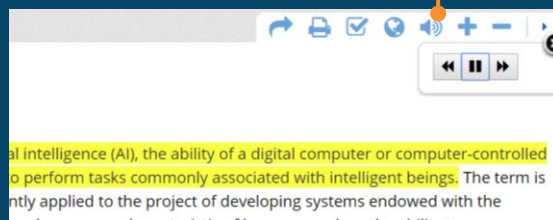
AB Dictionary

Double-click any word in an article to see a [Quick-Click Dictionary](#) definition! English and Spanish language available.



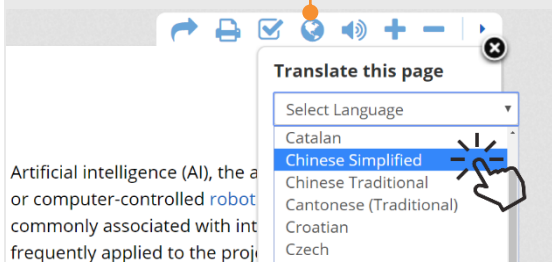
Text to Speech

Click the top-of-page Audio icon to listen to an audio version of the article with our [Text-to-Speech](#) feature.



Content Translator

Click the globe icon to open the [Translate](#) tool. Select the language you wish to translate to from the dropdown menu.



Artificial intelligence (AI), the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the

artificial intelligence (AI)



Powered by bing

Do you need help?

Please speak to your librarian if you have questions about using Britannica Academic or any of the features. You can also contact us directly through our:

Website: <https://elearn.eb.com>

Email: contact@eb.com.au

Watch it in action - Our inhouse trainers demo features and tips of using Britannica Academic for collegiate research:

Training Video: <https://bit.ly/2YOa3e4>