COMMON CORE CCSS.ELA-Literacy. RI.6.1, RI.6.2, RI.6.3, RI.6.7, RI.6.10, RI.7.1, RI.7.2, RI.7.3, RI.7.7, RI.7.10, RI.8.1, RI.8.2, RI.8.3, RI.8.7, RI.8.10, W.6.4, W.6.7, W.6.8, W.6.10, W.7.4, W.7.7, W.7.8, W.7.10, W.8.4, W.8.7, W.8.8, W.8.10, RH.6.–8.1, RH.6.–8.2, RH.6.–8.3, RH.6.–8.7, RH.6.–8.10, RST.6.–8.1, RST.6.–8.2, RST.6.–8.7, RST.6.–8.10

Step 3: Gather Information

Take a quick look at the chart you made for Step 1. Under "Resources Needed," you may have listed books, reference materials, magazines and newspapers, and Web sites. To complete research for your topic, you need to know:

- The types of information you need: primary and secondary
- Where to find the information you want
- Which search terms to use in your hunt
- How to evaluate the information you find

Primary and Secondary Information

Print, online, and video resources are divided into primary and secondary resources.

Primary resources

These documents, recordings, videos, or images are original, firsthand accounts of an event or a time. They are created during or close to a particular event or time. *The Diary of Anne Frank*, for example, is a primary resource.

EXAMPLES

- Diaries
- Journals
- Autobiographies
- Interviews
- Photographs
- Speeches
- Videos
- Articles written during the event or time
- Poems, novels, stories
- Government records

Secondary resources

These documents, recording, videos, or images are secondhand accounts of an historical event or a time. They often analyze or interpret primary resources. A biography of Anne Frank that quotes from her diary is a secondary resource.

EXAMPLES

- Biographies
- Histories
- Reviews
- Criticism
- Articles in encyclopedias, newspapers, magazines, and online

Resources in your project

You are likely to use mainly secondary resources for your project. However, primary sources can add interest to a report and bring the subject to life for the reader. If you were writing a biography of Maya Angelou, for example, you might quote from her autobiography, *I Know Why the Caged Bird Sings*, and from the poems she wrote.

ACTIVITY

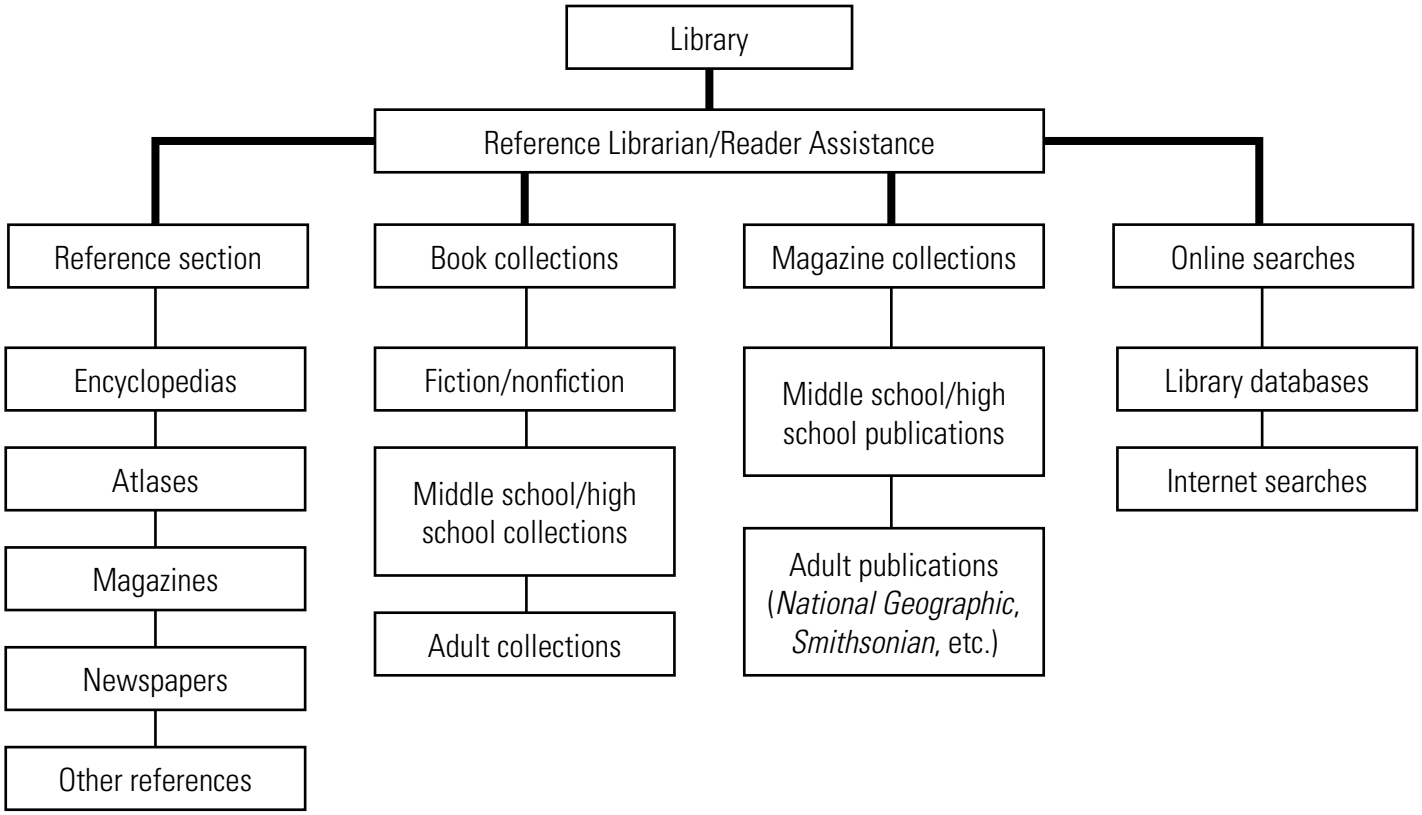
How can you use primary sources in your project? Brainstorm a few ideas and write or type them below. Keep these ideas in mind as you do your research.

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

Where to Find Information

The library is usually the best place to start your research. A reference librarian can save you time by helping you find resources more quickly. Explain your topic and assignment to the reference librarian and ask him or her to help you in your research.

The chart below shows the resources available in most libraries:



ACTIVITY

Think about your topic and your research questions. What resources might be the best place for you to start—an encyclopedia, a book, a magazine article, an online search? Write or type in two or three resources you would like to use to begin your search.

- _____
- _____
- _____
- _____

Which Search Terms to Use

Finding the right information is often about using the right search terms.

Suppose, for example, you're researching the Egyptian pharaoh King Tut. If you use the term "King Tut" to search the online library catalog, you'll get both fiction and nonfiction works. But if you use the term "History of King Tut," you will narrow your search to nonfiction sources.

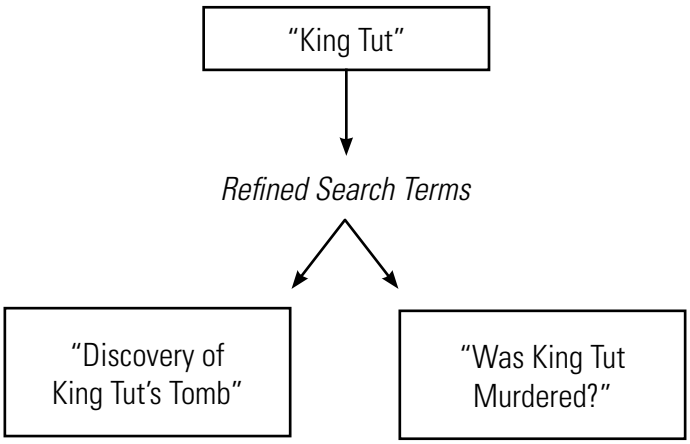
Online search engines such as Google or Bing access far more resources. If you use the search terms "King Tut" or "History of King Tut," here's what you'll get:

- "King Tut" — Over 6,000,000 articles, books, videos, and images on thousands of Web sites
- "History of King Tut" — Over 2,000,000 articles, books, videos, and images on thousands of Web sites

You need to narrow your search by refining your search terms.

Refine Your Search Terms

Think carefully about what you want to know regarding your topic. In the case of King Tut, for instance, do you want to know about King Tut's tomb or who or what killed King Tut? By being more specific, you'll find the exact information you need for your project.

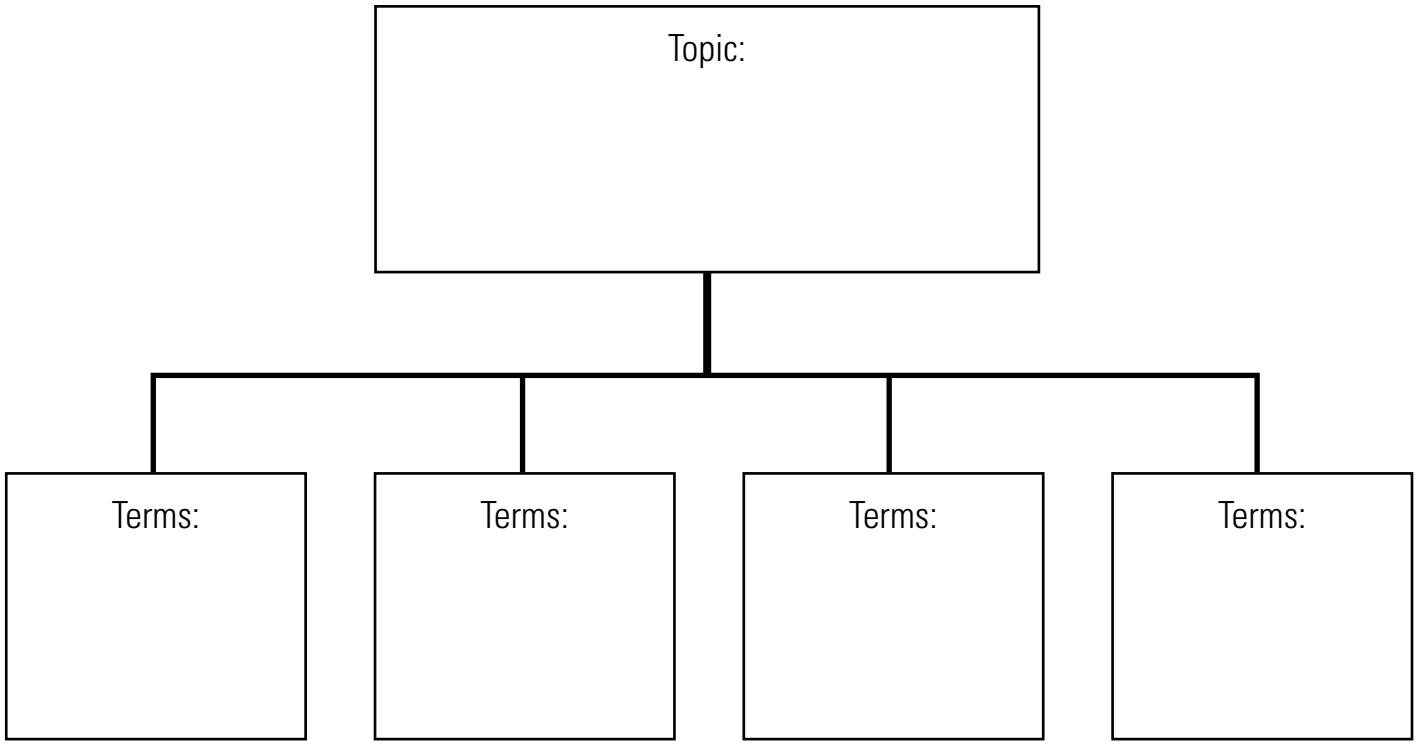


These search terms will yield far fewer results and give you much more useful information for your project.

Remember: The more specific your search terms, the more focused and useful your research results are likely to be.

ACTIVITY

Which search terms should you use for your topic? Think about what you want to know. Talk to the reference librarian and brainstorm with your project partners or with a teacher, parent, or friend. Then write or type your search terms in the chart below:



How to Evaluate Information

Not every resource you find will be worth using. How do you separate the best resources from those that are less useful? The best resources are accurate, reliable, credible, and current.

Accurate

- Can you find the same information in any other source? If a book says Maya Angelou was born April 4, 1928, can you find the same information in another book or online?
- Is the resource well written and free of obvious typos and errors? An article that claims the American Civil War ended in 1869, when it really ended in 1865, is likely to contain other mistakes.

Reliable

- Is the source as free from bias as possible? A Web-site article that claims "King Tut's tomb was cursed—everyone knows this," is not going to be strong in historical facts. Look for an objective, fair treatment of the topic or for facts to back up an author's opinion.
- Who is the publisher of the book or magazine? Who owns the Web site? Look up the publisher or Web-site owner online. Do they have a good reputation? What else have they published or written about?

Credible

- Can you tell who wrote the book, article, or online piece? What education or experience do they have? Look for academic degrees or years of experience working in a particular field.
- Is there contact information? Can you e-mail or write to the author, organization, or Web site to ask questions or to get further information?

Current

- For most topics, you'll need recent sources. When was the book or article published?
- For books, look for the year they were published on the copyright page. You can find it after the title page. For magazines, look for the month and year of publication.
- For Web sites, look for the date line or "Last updated" line. Is the site kept up to date or does it have old information?

ACTIVITY

Suppose you are researching the topic "Colonies on Mars." Look over the resources listed below. Rate each resource "Use" or "Don't Use" and tell briefly why. Compare your responses with your classmates' answers and discuss any differences you find.

1. *Living on Mars by 2030* (2013, published by NASA)
2. "Let's Go to the Moon, Not the Red Planet" (no author), "MyOwnOpinion" Web site (2014)
3. *Red Mars*, by Kim Stanley Robinson, science-fiction novel (1992)
4. "Mars," in *New Views of the Solar System,* 2013
5. "What Do We Know About Mars?" by June Yao, Ph.D., astrophysicist, *Science Magazine* (July/August 1993)
6. *Packing for Mars: The Curious Science of Life in the Void*, by Mary Roach, science writer (Oxford Press, 2010)

1. Use ☐ Don't Use ☐

   Why: _____

2. Use ☐ Don't Use ☐

   Why: _____

3. Use ☐ Don't Use ☐

   Why: _____

4. Use ☐ Don't Use ☐

   Why: _____

5. Use ☐ Don't Use ☐

   Why: _____

6. Use ☐ Don't Use ☐

   Why: _____

Now you're ready to find information in books, references, and online sites.

Use Books

How do you know if a print book or an E-book has the information you need on your topic? The easiest way is to look at the table of contents and the index. Both can tell you whether a book is going to be useful in your research.

Table of Contents

The table of contents is found at the front of the book. It tells you what subjects are covered in each chapter, section, or part. Look for a title related to your topic in the table of contents. Then turn to the page you want.

ACTIVITY

The example below is from "World Exploration from Ancient Times", a *Compton's by Britannica* E-book. Suppose you are writing about people who explored the South Pole. What chapter title and page number would be useful in your research?

_____

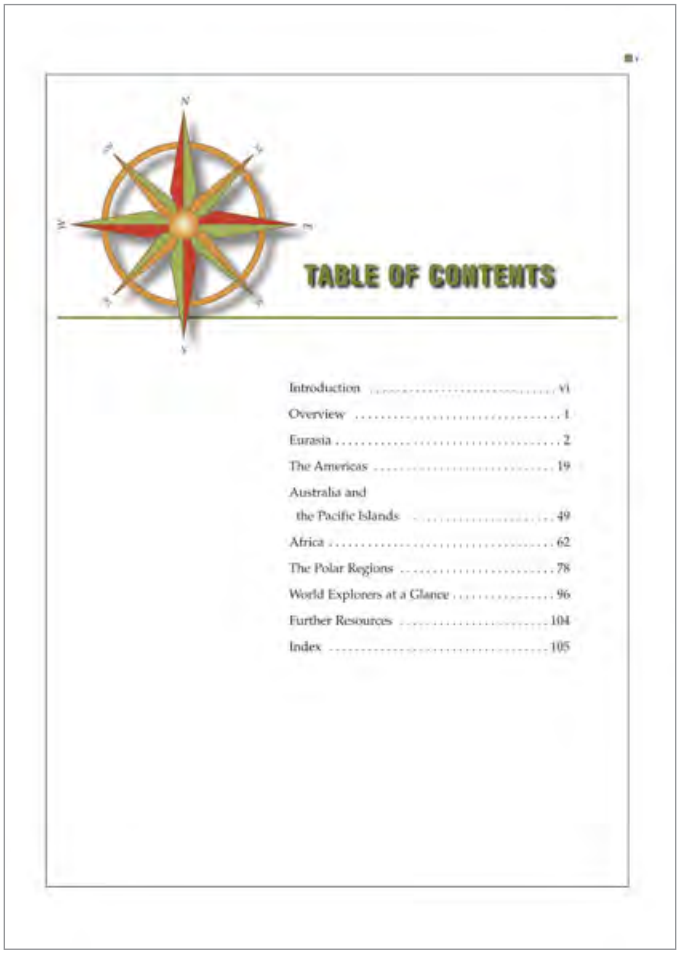
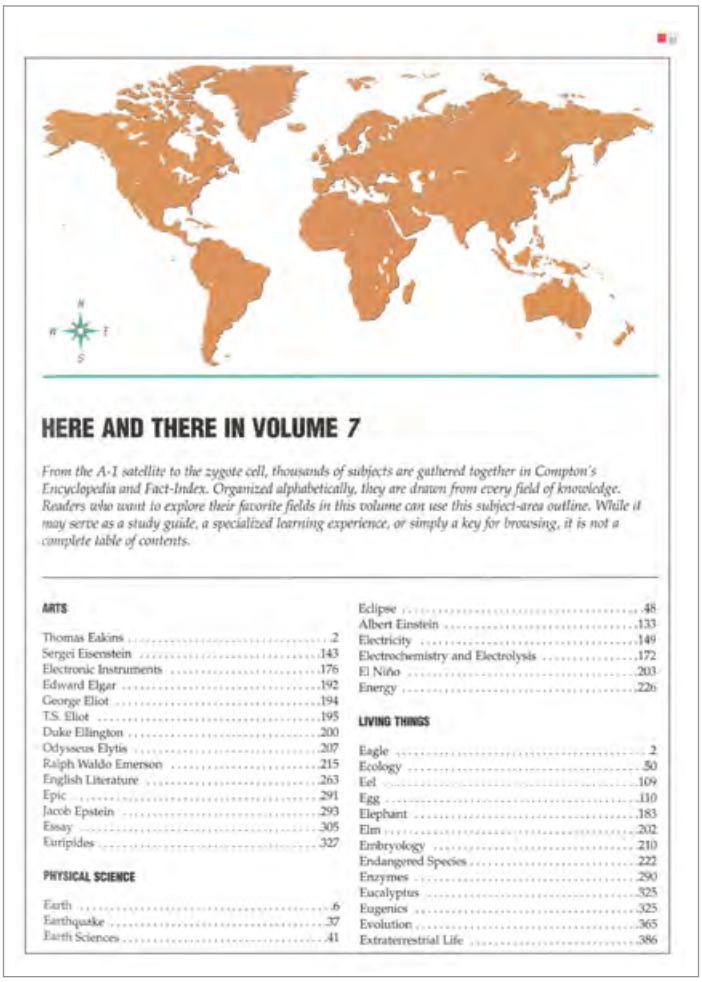


TABLE OF CONTENTS

In *Compton's by Britannica*, "Here and There" pages serve as subject-area outlines. While not a complete table of contents, these pages can help you browse any volume of the encyclopedia for subjects related to your topic.

ACTIVITY

Look over the table of contents and then answer the questions below.



HERE AND THERE IN VOLUME 7

From the A-1 satellite to the zygote cell, thousands of subjects are gathered together in Compton's Encyclopedia and Fact-Index. Organized alphabetically, they are drawn from every field of knowledge. Readers who want to explore their favorite fields in this volume can use this subject-area outline. While it may serve as a study guide, a specialized learning experience, or simply a key for browsing, it is not a complete table of contents.

What subject areas might be important in your research on the following topics?

Earth's atmosphere: _____

Life on other planets: _____

Important jazz musicians: _____

Elephants: Endangered species?: _____

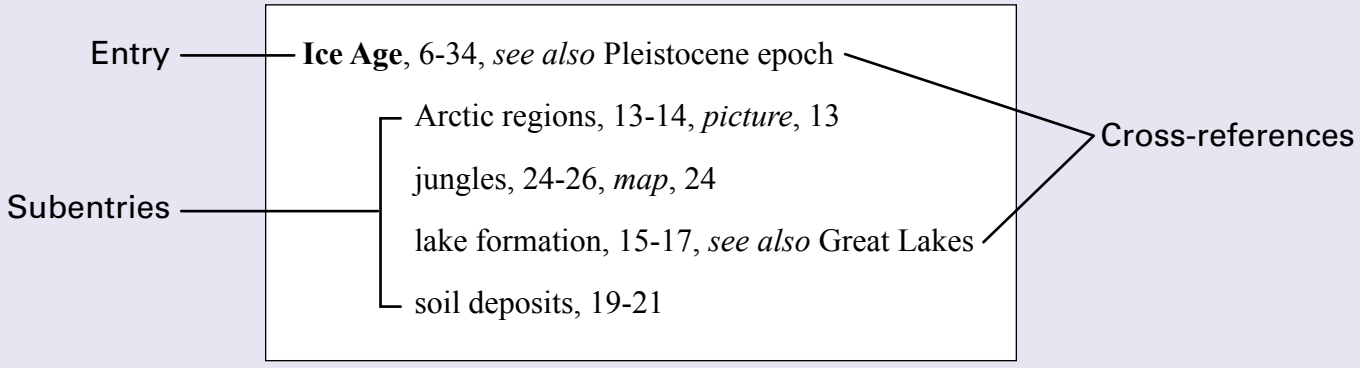
Book Indexes

The index is usually found at the back of a book or in a separate volume for a series of books, such as an encyclopedia. The index lists all the topics and subtopics covered in a book.

Index Features

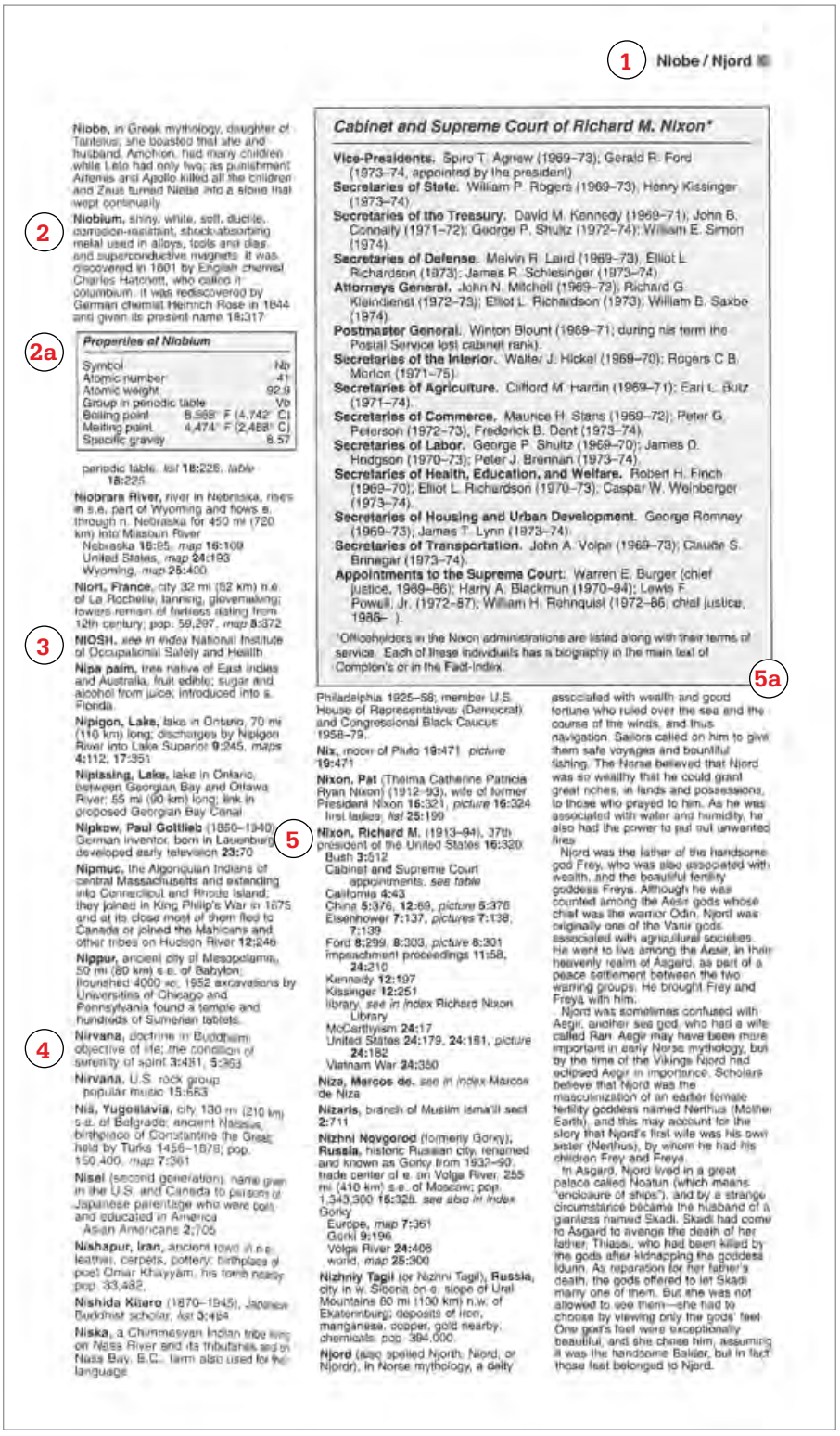
It's easy for you to find information on your topic because the entries are listed in alphabetical order. Next to each entry or subentry are all the pages numbers where you'll find that topic in the book. Some index entries will also provide page numbers for pictures, maps, or tables. A cross-reference after an entry refers you to other related topics in the index.

EXAMPLE



Fact-Indexes

The index on the following page is a Fact-Index with several features. Besides simple entries, this index also includes articles with some entries, a list of topics related to an entry, and cross-references. The page numbers list the volume of the encyclopedia first and then the pages where the information begins. For example, **5**:343, means volume 5, page 343.



1 Niobe / Njord

Niobe, in Greek mythology, daughter of Tantalus; she boasted that she and husband, Amphion, had many children while Leto had only two; as punishment Artemis and Apollo killed all the children and Zeus turned Niobe into a stone that wept continually

2 **Niobium**, shiny, white, soft, ductile, corrosion-resistant, shock-absorbing metal used in alloys, tools and dies and superconductive magnets. It was discovered in 1801 by English chemist Charles Hatchett, who called it columbium. It was rediscovered by German chemist Heinrich Rose in 1844 and given its present name **16:**317

2a *Properties of Niobium*

Symbol	Nb
Atomic number	41
Atomic weight	92.9
Group in periodic table	Vb
Boiling point	8,569° F (4,742° C)
Melting point	4,474° F (2,468° C)
Specific gravity	8.57

periodic table, *list* **18:**226, *table* **18:**225

Niobrara River, river in Nebraska, rises in s.e. part of Wyoming and flows s. through n. Nebraska for 450 mi (720 km) into Missouri River
Nebraska **16:**65, *map* **16:**109
United States, *map* **24:**193
Wyoming, *map* **25:**400

Niort, France, city 32 mi (52 km) n.e. of La Rochelle; tanning, glovemaking; towers remain of fortress dating from 12th century; pop. 59,297, *map* **8:**372

3 **NIOSH**, *see in index* National Institute of Occupational Safety and Health

Nipa palm, tree native of East Indies and Australia, fruit edible; sugar and alcohol from juice; introduced into s. Florida

Nipigon, Lake, lake in Ontario, 70 mi (110 km) long; discharges by Nipigon River into Lake Superior **9:**245, *maps* **4:**112, **17:**351

Nipissing, Lake, lake in Ontario, between Georgian Bay and Ottawa River; 55 mi (90 km) long; link in proposed Georgian Bay Canal

5 **Nipkow, Paul Gottlieb** (1860–1940), German inventor, born in Lauenburg; developed early television **23:**70

Nipmuc, the Algonquian Indians of central Massachusetts and extending into Connecticut and Rhode Island; they joined in King Philip's War in 1675 and at its close most of them fled to Canada or joined the Mahicans and other tribes on Hudson River **12:**246

Nippur, ancient city of Mesopotamia, 50 mi (80 km) s.e. of Babylon; flourished 4000 BC; 1952 excavations by Universities of Chicago and Pennsylvania found a temple and hundreds of Sumerian tablets

4 **Nirvana**, doctrine in Buddhism; objective of life; the condition of serenity of spirit **3:**481, **5:**363

Nirvana, U.S. rock group
popular music **15:**563

Niš, Yugoslavia, city, 130 mi (210 km) s.e. of Belgrade; ancient Naissus, birthplace of Constantine the Great; held by Turks 1456–1878; pop. 150,400, *map* **7:**361

Nisei (second generation), name given in the U.S. and Canada to persons of Japanese parentage who were born and educated in America
Asian Americans **2:**705

Nishapur, Iran, ancient town in n.e. Iran; carpets, pottery; birthplace of poet Omar Khayyám, his tomb nearby; pop. 33,432

Nishida Kitaro (1870–1945), Japanese Buddhist scholar, *list* **3:**484

Niska, a Chinmesyan Indian tribe living on Nass River and its tributaries and in Nass Bay, B.C.; term also used for the language

*Cabinet and Supreme Court of Richard M. Nixon**

Vice-Presidents. Spiro T. Agnew (1969–73); Gerald R. Ford (1973–74, appointed by the president)
Secretaries of State. William P. Rogers (1969–73); Henry Kissinger (1973–74)
Secretaries of the Treasury. David M. Kennedy (1969–71); John B. Connally (1971–72); George P. Shultz (1972–74); William E. Simon (1974)
Secretaries of Defense. Melvin R. Laird (1969–73); Elliot L. Richardson (1973); James R. Schlesinger (1973–74)
Attorneys General. John N. Mitchell (1969–73); Richard G. Kleindienst (1972–73); Elliot L. Richardson (1973); William B. Saxbe (1974)
Postmaster General. Winton Blount (1969–71; during his term the Postal Service lost cabinet rank)
Secretaries of the Interior. Walter J. Hickel (1969–70); Rogers C.B. Morton (1971–75)
Secretaries of Agriculture. Clifford M. Hardin (1969–71); Earl L. Butz (1971–74)
Secretaries of Commerce. Maurice H. Stans (1969–72); Peter G. Peterson (1972–73); Frederick B. Dent (1973–74)
Secretaries of Labor. George P. Shultz (1969–70); James D. Hodgson (1970–73); Peter J. Brennan (1973–74)
Secretaries of Health, Education, and Welfare. Robert H. Finch (1969–70); Elliot L. Richardson (1970–73); Caspar W. Weinberger (1973–74)
Secretaries of Housing and Urban Development. George Romney (1969–73); James T. Lynn (1973–74)
Secretaries of Transportation. John A. Volpe (1969–73); Claude S. Brinegar (1973–74)
Appointments to the Supreme Court: Warren E. Burger (chief justice, 1969–86); Harry A. Blackmun (1970–94); Lewis F. Powell, Jr. (1972–87); William H. Rehnquist (1972–86, chief justice, 1986–)

*Officeholders in the Nixon administrations are listed along with their terms of service. Each of these individuals has a biography in the main text of Compton's or in the Fact-Index.

5a

Philadelphia 1925–58; member U.S. House of Representatives (Democrat) and Congressional Black Caucus 1958–79.

Nix, moon of Pluto **19:**471 *picture* **19:**471

Nixon, Pat (Thelma Catherine Patricia Ryan Nixon) (1912–93), wife of former President Nixon **16:**321, *picture* **16:**324
first ladies, *list* **25:**199

Nixon, Richard M. (1913–94), 37th president of the United States **16:**320
Bush **3:**512
Cabinet and Supreme Court appointments, *see table*
California **4:**43
China **5:**376, **12:**69, *picture* **5:**376
Eisenhower **7:**137, *pictures* **7:**138, **7:**139
Ford **8:**299, **8:**303, *picture* **8:**301
impeachment proceedings **11:**58, **24:**210
Kennedy **12:**197
Kissinger **12:**251
library, *see in index* Richard Nixon Library
McCarthyism **24:**17
United States **24:**179, **24:**181, *picture* **24:**182
Vietnam War **24:**350

Niza, Marcos de, *see in index* Marcos de Niza

Nizaris, branch of Muslim Isma'ili sect **2:**711

Nizhni Novgorod (formerly Gorky), **Russia**, historic Russian city, renamed and known as Gorky from 1932–90, trade center of e. on Volga River; 255 mi (410 km) s.e. of Moscow; pop. 1,343,300 **15:**328, *see also in index* Gorky
Europe, *map* **7:**361
Gorki **9:**196
Volga River **24:**408
world, *map* **25:**300

Nizhniy Tagil (or Nizhni Tagil), **Russia**, city in w. Siberia on e. slope of Ural Mountains 80 mi (130 km) n.w. of Ekaterinburg; deposits of iron, manganese, copper, gold nearby; chemicals; pop. 394,000.

Njord (also spelled Njorth, Niord, or Njordr), in Norse mythology, a deity associated with wealth and good fortune who ruled over the sea and the course of the winds, and thus navigation. Sailors called on him to give them safe voyages and bountiful fishing. The Norse believed that Njord was so wealthy that he could grant great riches, in lands and possessions, to those who prayed to him. As he was associated with water and humidity, he also had the power to put out unwanted fires.
Njord was the father of the handsome god Frey, who was also associated with wealth, and the beautiful fertility goddess Freya. Although he was counted among the Aesir gods whose chief was the warrior Odin, Njord was originally one of the Vanir gods associated with agricultural societies. He went to live among the Aesir, in their heavenly realm of Asgard, as part of a peace settlement between the two warring groups. He brought Frey and Freya with him.
Njord was sometimes confused with Aegir, another sea god, who had a wife called Ran. Aegir may have been more important in early Norse mythology, but by the time of the Vikings Njord had eclipsed Aegir in importance. Scholars believe that Njord was the masculinization of an earlier female fertility goddess named Nerthus (Mother Earth), and this may account for the story that Njord's first wife was his own sister (Nerthus), by whom he had his children Frey and Freya.
In Asgard, Njord lived in a great palace called Noatun (which means "enclosure of ships"), and by a strange circumstance became the husband of a giantess named Skadi. Skadi had come to Asgard to avenge the death of her father, Thiassi, who had been killed by the gods after kidnapping the goddess Idunn. As reparation for her father's death, the gods offered to let Skadi marry one of them. But she was not allowed to see them—she had to choose by viewing only the gods' feet. One god's feet were exceptionally beautiful, and she chose him, assuming it was the handsome Baldur, but in fact those feet belonged to Njord.

(1) First and last entries on page

(2) **Niobium**, an article with
(2a) a fact table

(3) **NIOSH** Cross-reference to organization name

(4) **Nirvana**, a simple entry in Vol. 1, p. 481 and Vol. 5, p. 363

(5) **Nixon**, entries, subentries, and
(5a) a detailed table

ACTIVITY

Here's a sample index about modern and ancient Egypt. Use the index to answer the following questions.

1. If you want to compare the religions of ancient Egypt and modern Egypt, which entries would you use to research this information?

   _____
   _____

2. Which entries would tell you about Egyptians' beliefs regarding life after death?

   _____
   _____

3. List the entries where you can find pictures of ancient Egyptian objects and people.

   _____
   _____
   _____

4. If you wanted to find out how the Aswan High Dam was built, where would you look?

   _____

5. Which index entries are related to war in Egypt?

   _____
   _____
   _____

6. What entry would you look under to learn about ancient Egyptian forms of writing?

   _____

7. Where would you look to find out what ancient Egyptians knew about the night sky?

   _____

Use Reference Books

When using encyclopedias or other reference books, you don't need to read every word on the page. You can use a quick method called *skimming and scanning* to see if the article has the information you want.

Skim

Skimming is looking at a page very quickly to find the title, subheadings, pictures, and other features, such as lists or guides to the text. Do these features mention your topic or subtopics? Do the pictures show useful information about your topic? If so, then you go to the next step, scanning.

Scan

Scanning is searching a page quickly for specific details, such as words, phrases, or numbers related to your topic or subtopics. If you are looking for information on the topic "Life on Earth," for example, you might look on the pages for the terms "atmosphere," "special conditions that support life," and "abundant water." If you find them, this shows the article is a good resource for your topic.

ACTIVITY

Look at this sample from New Views of the Solar System, a *Compton's by Britannica* E-book, for the key features of a page. If you are writing about life on Earth, you should be able to find information on this topic quickly by skimming and scanning.

Title:
Main topic of the article

Special Features:
Specific summarized information about the topic often displayed in a graphic format

More to Explore:
A list of subtopics and sometimes other sources for information

Page Heads:
Usually tell you the title of the book, the article name, and page number

EARTH

The third planet from the sun is Earth, our home. It contains the only places in the universe known to harbor life of any kind. Liquid water, which is essential for all known forms of life, is found in abundance on Earth. Deep, salty oceans cover more than two-thirds of the surface. Also, the planet's oxygen-rich atmosphere is unique. This is actually not surprising, since large amounts of oxygen exist in the atmosphere only because living things constantly supply it. Earth's green plants take in carbon dioxide and give off oxygen, which humans and other animals need to breathe.

Earth has one natural satellite, the moon. Because of its nearness to Earth, it is the brightest object in the sky after the sun. (The moon, of course, does not generate its own light but reflects the light of the sun.) Earth's moon is large, but it is not the largest moon in the solar system. However, no other moon is as massive compared to its planet as Earth's moon. The moon's large comparative size means that it affects Earth to an unusual degree. Its influence is most evident in the ocean tides, which are caused by the pull of the moon's gravity.

Basic Planetary Data

Earth's planetary neighbors are Venus, which orbits closer to the sun, and Mars, which orbits farther from the sun. Along with Mercury, Venus, and Mars, Earth is one of the four inner, terrestrial planets, which are rocky worlds with solid surfaces. They are much denser and smaller than the four outer planets.

Size, mass, and density. Earth is the largest of the four terrestrial planets and the fifth largest of all eight planets. Its diameter is more than 2.5 times as big as that of the smallest planet, Mercury, but more than 11 times smaller than that of the largest, Jupiter.

For several hundred years almost everyone has accepted the fact that Earth is round. Actually, Earth is nearly, but not exactly, spherical. Like other planets, Earth has a slight bulge around its equator, which results from its rotation about its spin axis. Measured at sea level, the diameter of Earth around the equator is 7,926 miles (12,756 kilometers). The distance from the North Pole to the South Pole, also measured at sea level, is 7,900 miles (12,714 kilometers). Compared to the overall diameter, the difference—only about 26 miles (42 kilometers)—seems small. But compared to the height of Earth's surface features, it is fairly large. For example, the planet's tallest mountain, Mount Everest, juts less than 6 miles (9 kilometers) above sea level. Earth's total surface area is about 196,950,000 square miles (510,066,000 square kilometers).

Earth is the most massive of the terrestrial planets. Its mass is 6.587×10^{21} tons (5.976×10^{24} kilograms). In numerals this would read 6 sextillion, 587 quintillion tons. Venus has roughly 80 percent of Earth's mass; Mars, 11 percent; and Mercury, only 5.5 percent. The outer planets are much more massive than Earth, however, ranging from 14.5 times as massive (Uranus) to 320 times (Jupiter).

Earth has the greatest average density of the planets (though Mercury is denser if internal compression

Astronauts aboard the Apollo 17 spacecraft captured a stunning image of Earth as the spacecraft headed to the moon in 1972. Vast oceans and even surround the continent of Africa, the island of Madagascar, and, at top, the Arabian Peninsula. The swirling clouds in the atmosphere are concentrated above the south polar ice cap.

Facts About Earth

Average Distance from Sun. 92,956,000 miles (149,600,000 kilometers).

Diameter at Equator. 7,926 miles (12,756 kilometers).

Average Orbital Velocity. 18.5 miles/second (29.8 kilometers/second).

Year on Earth. 365.3 Earth days.

Rotation Period. 23.9 Earth hours.

Day on Earth (Solar Day). 24.3 Earth hours.

Tilt (Inclination of Equator Relative to Orbital Plane. 23.5°.

Atmospheric Composition. 78% molecular nitrogen; 21% molecular oxygen; 0.93% argon; variable amounts of water vapor, carbon dioxide, ozone, and other gases; small amounts of neon, helium, methane, krypton, and other gases.

General Composition. Iron core, silicate rocks.

Average Surface Temperature. 59° F (15° C).

Number of Known Moons. 1.

factors are considered). Its average density is some 3.2 ounces per cubic inch (5.5 grams per cubic centimeter). This falls between the density of iron, which is denser, and that of the volcanic rock basalt, which is less dense. However, Earth is made up of many different kinds of materials with varying densities. In general, the planet's density increases with depth. The material on the continents is on average only about half as dense as Earth's average density. The density of the core is thought to be roughly twice the average.

Orbit and spin. Each planet, including Earth, travels around the sun in a regular orbit—that is, they revolve around the sun in the same direction that the sun rotates, which is counterclockwise as viewed from above Earth's North Pole. Earth orbits the sun at an average distance of about 92,955,808 miles (149,597,870 kilometers). This distance is defined as one astronomical unit (AU), a basic unit that astronomers use in describing the enormous distances in space.

Ancient astronomers thought that the orbits of the planets were circular. It is now known that the orbits are elliptical (elongated), though the orbits of most planets are almost circular. Earth's orbital eccentricity—the extent to which it departs from a perfectly circular path—is very slight. The closest and farthest Earth gets from the sun vary only about 1.7 percent from its average distance from the sun. Among the planets, only Venus and Neptune have orbits that are closer to being perfect circles.

To humans, Earth seems steady and immovable. It gives no sensation of motion, so it is hard to realize how rapidly Earth moves through space in its orbit around the sun. It takes about 365 days, or a whole year, to make one round trip, which seems rather slow. But on average, Earth moves in its orbit at 18.5 miles (29.8 kilometers) per second, or 66,600 miles (107,180 kilometers) per hour. It actually takes about 365.26 days for Earth to travel once around the sun, so 365.26 is the length of an astronomical year on Earth. For convenience, the Gregorian calendar (the calendar in general use) divides most years into 365 days exactly. Every fourth year, with a few exceptions, has 366 days. These longer years are called leap years.

Like the other planets, Earth spins about its axis as well as orbits the sun. Earth makes one rotation on its axis relative to the sun about every 24 hours, 3 minutes, and 57 seconds. In other words, it is about 24 hours from high noon on one day to high noon on the next. So, 24 hours is about the length of a solar day on Earth. Mars has a very similar solar day to Earth's. On the other hand, Jupiter and Saturn rotate more than twice as quickly as Earth and Mars do.

Earth rotates in a counterclockwise direction as viewed from above the North Pole looking down. This is the same direction in which Earth revolves around the sun. Most of the other planets also rotate in this direction, which is called prograde.

Earth's spin axis is not perpendicular, or upright, relative to the plane in which it orbits. Rather, it is tilted about 23.5 degrees. This inclination is mainly responsible for the cycle of seasons on Earth. As Earth orbits the sun, the North Pole always points in the same direction in space. As a result, during some of the year, the North Pole is tilted away from the sun. It is then winter in the Northern Hemisphere and summer in the Southern Hemisphere. Six months later the situation is reversed, and the North Pole is tilted toward the sun and the South Pole away from it.

The familiar, near side of the moon appears in an image taken in 1992 by the Galileo spacecraft while on its way to Jupiter. The lighter areas are heavily cratered, ancient highlands, while the darker areas are younger, lava-filled impact basins.

Subheads:
Subtopics of the article

Body Text:
The main article

Captions:
Information about a picture

Use Online Resources

Online searches are a good way to do research at home, at school, or at the library. Although not every student has a library nearby, most students have access to a computer and many can do searches on a smartphone.

Use the best Web sites

As you do research online, keep in mind the four requirements for good research information: *accurate*, *reliable*, *credible*, and *current*. Web sites that fit all four requirements include:

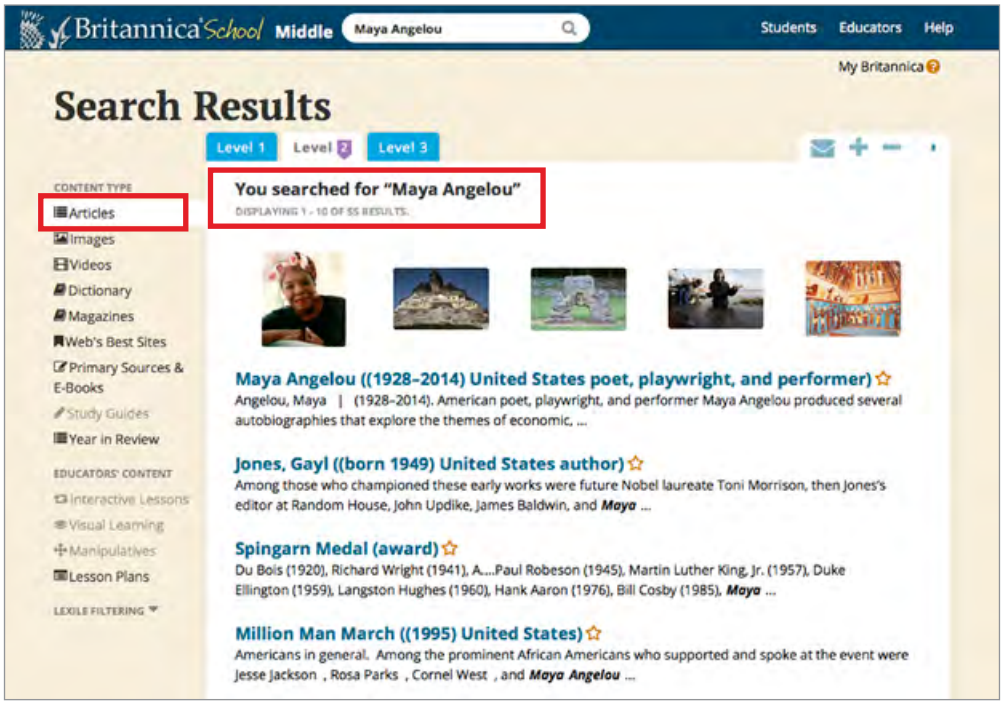
- reference Web sites
- government Web sites
- university or school Web sites
- specialty Web Sites: museums, historical societies, literary societies, and more

These Web sites often have *.edu*, *.org*, or *.gov* in the Web-site address. If you have doubts about a Web site, ask your teacher or parent to review it with you.

Focus your search terms

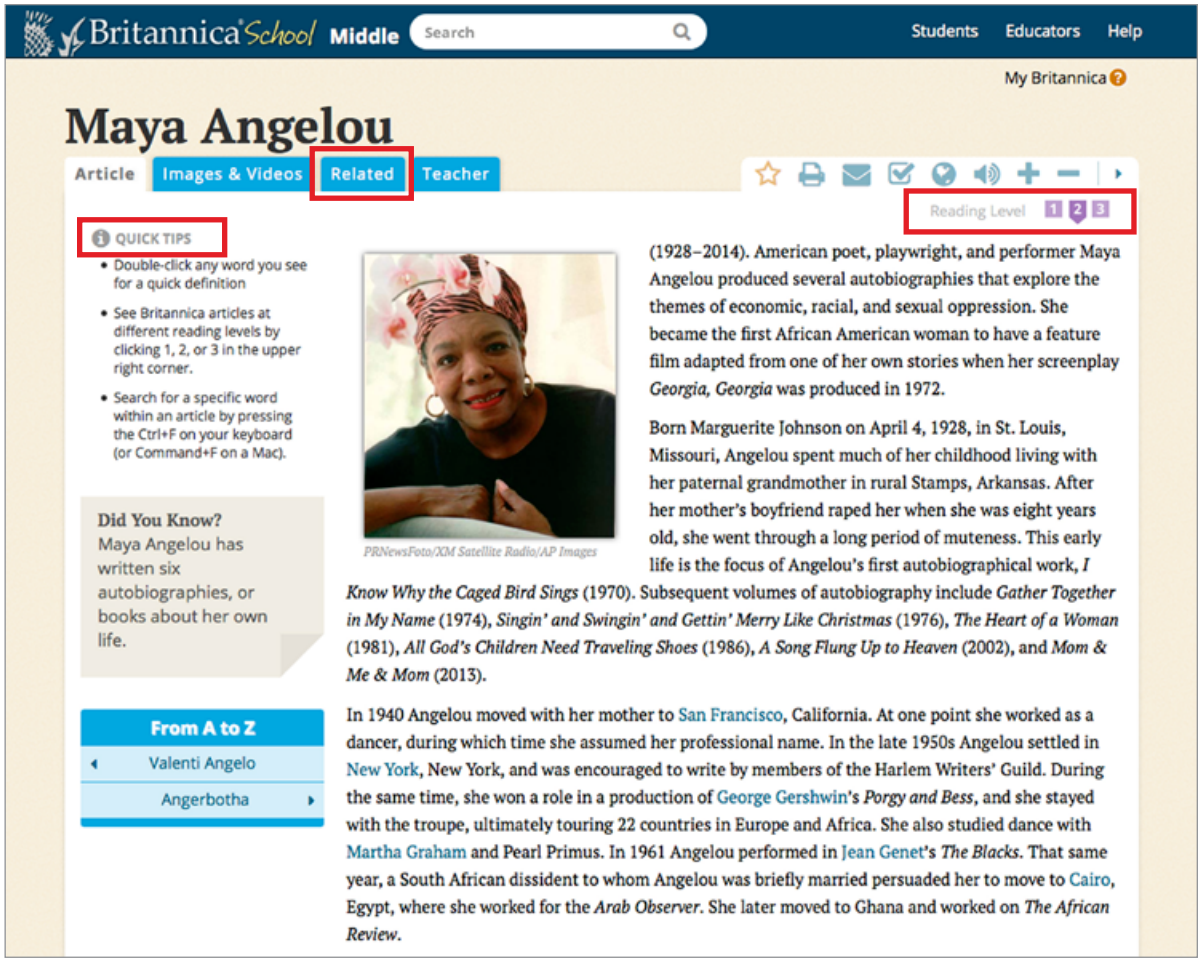
Focus your search terms to make them as specific as possible. In the sample Web page from the Middle level of *Britannica School*, for example, a search for "Maya Angelou" has turned up several articles that mention **Maya Angelou** by name. However, only the first article focuses on her life.

You decide to choose the biographical article "Maya Angelou (born 1928) . . . " Notice that in the column on the left-hand side, you can also search for "Maya Angelou" in images, videos, magazines, and primary sources & E-Books.



The Maya Angelou biographical article appears below. Look over the "Quick Tips" on the left-hand side of the page. According to this feature:

- You can double-click on any word in the article for a definition.
- You can find other *Britannica* articles written at different reading levels. Just click on the 1, 2, or 3 (circled in red) in the right-hand side above the article.
- You can search for key terms within the article by using the Crl+F (on a PC) or Command + F (on a Mac). This feature allows you to skim and scan the article to determine if it's useful in your research.



ACTIVITY

Study this NASA Web page and then answer the questions below.

1. Your topic is "Exploration on Mars." Skim and scan this Web page. Which features might offer the best sources of information?

   _____

   _____

2. Where can you find information about NASA's proposed mission to Mars?

   _____

3. Suppose you are writing about the Mars rover *Curiosity*. Where can you find images to illustrate your report?

   _____

4. Where would you look to find more resources for students on this Web site?

   _____

5. What multimedia resources does this site offer, and how would you access them?

   _____

Interview an Expert

Your project may require you to interview someone who is an expert or who is knowledgeable about the topic you're researching. An interview is basically a question-and-answer meeting you can do in person, by phone or video conference, or by e-mail.

Find an expert

The first step is to find the expert you want to interview. You can locate experts using the following resources:

- Ask the reference librarian. Libraries often have lists of experts in various fields who have agreed to be interviewed, a type of "Ask the Expert" list.
- Ask your teacher. He or she may know local or national experts who have been interviewed in past years or who will agree to an interview.
- Contact the author of a book you found particularly helpful. Many authors have their own Web sites and can be contacted through the site.
- Check government agency Web sites, such as those for NASA, NOAA, the U.S. Geological Survey, and the Library of Congress. They often have experts you can contact.
- Check with local universities and colleges. Their faculty members are experts in their fields and may grant interviews to students.
- Check with local or national museums, historical societies, music groups, art academies, and other organizations. They often have "guest speakers" or "speakers bureaus," which are lists of people you can contact. Your teacher or reference librarian can help you find these organizations.
- Ask your parents, relatives, neighbors, and friends. They might know experts or someone knowledgeable in your topic area who would be willing to speak with you.

ACTIVITY

Think about your topic area and the experts in that field. For example:

1. For colonies on Mars – Find a Mars expert at NASA or a science museum
2. For King Tut – Find an expert in Ancient Egypt at a museum or university
3. For a biography on Maya Angelou – Find a poetry instructor at a local university or college

Choose the places where you might find an expert in your topic area:

museum	library	speakers bureau
author Web site	university or college	writers organization
relative, neighbor	historical society	music organization
government agency	art school	sports organization
armed services office	local business	

Next, write down the names of one or two people you would like to interview, such as an author or a scientist:

_____

_____

Set up the interview

Once you have identified your expert, follow these steps to set up the interview:

- Contact the person you have located and explain what your assignment and topic are.
- Agree about when and where you can meet or when you can have a telephone or video-conference call.
- If the meeting is outside your home, have a parent, an older sibling, or a friend go with you to the meeting.
- Always be on time to the meeting whether you are interviewing the expert in person or talking over the phone or in a video conference.

Prepare the questions

You want to make the most of your time with your expert, so write down your questions before you meet. It's a good idea to keep a list as you do your research. For example, you might have questions about:

- Things you didn't understand in a book, Web-site article, or another resource
- Things you want to know more about that were only briefly mentioned
- Events or people who influenced your subject's life
- Ideas or issues the resources didn't cover but you'd like to know about
- What might happen in the future in your topic area

ACTIVITY

Write down the questions you have so far on your topic. What other questions might you ask your expert?

When your interview is done, remember to thank the person for their time. Ask the person if you can contact them again if you have more questions later.