33 Successful Online Research

33a Knowing about online research

To go online means to connect to the Internet and, indirectly, to the many computers that are linked across that vast network. The Internet offers you immediate access to immense amounts of information: newspapers, periodicals, and books; official government documents; research reports in every field by academic, government, and private organizations and institutions; some music; some videos; and so forth.

Chapter 32 explains how to access electronic sources through your school library, via CD-ROMs or an Internet connection (see especially 32o). This chapter focuses on the sources available on one part of the Internet—the World Wide Web.

The **World Wide Web (WWW)** is the most convenient entry to the Internet. The **Internet** is a network of computers at universities, research centres, government facilities, and businesses around the world. The World Wide Web (often called the **Web**) is organized around pages (called *Web pages*) that are linked together. The main page, called the *home page*, acts as a table of contents to Web pages that are linked in *Web sites*. (*Web page* and *Web site* are often used interchangeably.) For a page to be on the Web, someone has to have created a Web site.

The openness of the Web is good news and bad. The good news is that anyone can have a "place in cyberspace." The bad news is that anyone, no matter what his or her motives or degree of reliability, can create a Web site. Although many Web sites are reliable, many others are untrustworthy, inaccurate and incomplete, advertisements-in-disguise, platforms for hate-mongers, or even material that has been stolen (i.e., plagiarized) from a printed or other Internet source. When an earlier draft of this chapter was being written, the Web had over fifteen million sites; it has far more today and it will have even more when you read this page. Online research demands a careful, critical eye.

The best advice is "online researcher beware." Be sure to evaluate online sources—whether on the Web or the Internet—using the criteria in Chart 148 in section 33f.

In spite of any disadvantages, researching online has several benefits. You can do some of your research from the comfort of your own desk. If your topic is very current, you may be able to augment library research with online research. For example, suppose that you are researching mad cow disease and want to know whether any cases have been discovered in Italy. The World Wide Web and other Internet sites will produce source material more current than you can find in the library. For quick access to many online sources that deal with writing and research, go to these Web sites and use their direct links:

www.pearsoned.ca/troyka

www.prenhall.com/english

As a researcher, you need to depend on your university or college library and other libraries as well as on the Internet. You can find many—but certainly not all—of the same resources online that you can find in a library. Some works are found only in libraries. This is especially true if a source dates from before 1980, when the Internet was becoming prominent. When you use the Web, always know that while sites may provide the most up-to-date information, many sites shut down suddenly. Therefore, always record all the information you need for citing an online source when you access that site in case it has shut down by the time you look for it again (see 31a-2 about creating a master documentation guide).

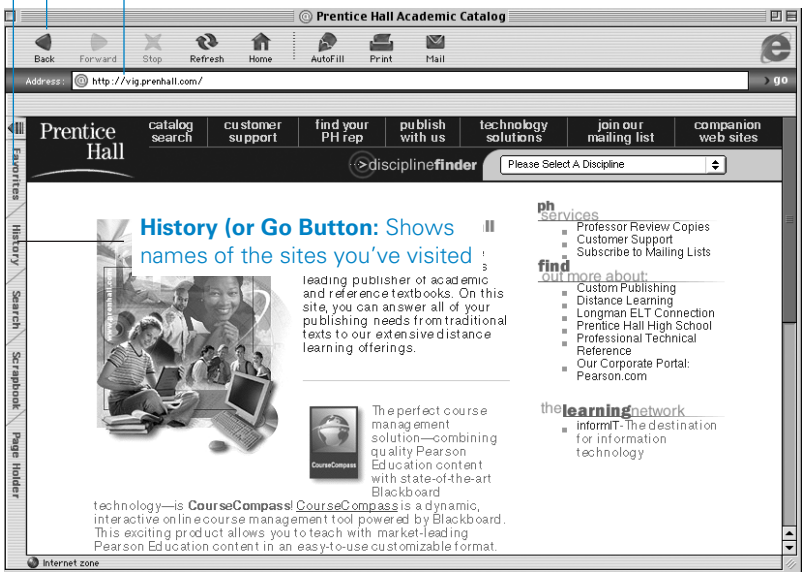
33b Searching the Web

Before you can search the Web for sites that will help you answer your research question, you must get on the Web. You do this by means of a browser, a program that gives you access to the Web and the search engines located there. Netscape Navigator and Microsoft Internet Explorer are two popular browsers. Once on the Web, you can search for sites by using a search engine or by typing an address into the locator box. Explorer is shown on page 569, and labelled to explain the main features of a browser.

Favorites (or Bookmark) Lets you save a list of frequently visited sites.

Back: Takes you to the previous page visited.

Locator box: Contains space for the URL (site address)



Main Features of a Browser

33c Designing a search strategy for online research

An online search strategy is very much like a library search strategy (see Chapter 32). You start with a broad subject and narrow it to become a suitable topic for an academic research paper. (For a discussion of what makes a suitable topic, consult 2c and 32d.)

1 Using URLs

A **URL** is a Universal Resource Locator. It is a specific "address" on the Internet. Sometimes you have a URL that you know will take you right to a site containing the information you need. To reach that site, type the URL into the locator box near the top of your screen.

2 Using search engines

Search engines are your best entry point for online research. A search engine lists Web sites related to whatever subject or keyword (33d) you have typed into its search box.

Some useful search engines

AltaVista	altavista.com
Excite	www.excite.com
Infoseek	guide.infoseek.com
Lycos	www.lycos.com
Maple Square	maplesquare.ca/
Northern Light	www.nlsearch.com
Yahoo!	www.yahoo.com

Some large U.S.-based search engines also have Canadian versions; Maple Square is a Canadian-based search engine. Some search engines look in Usenet (newsgroups) as well as the Web. Northern Light categorizes Web pages into custom folders—for example, by date.

Most search engines give you the choice of typing in keywords or navigating subject directories. In navigating a subject directory (see 33d-1), you let the search engine guide you in following a process that leads from the general to the specific. When you do a keyword search (see 33d-2), the search engine brings back every page that it can locate containing those keywords. To do efficient keyword searches, you need to choose your keywords carefully and be prepared to weed out rapidly many "hits" (or listings of sites containing your keywords) that are not relevant to your research. Be prepared to revise your search several times. It is always a good idea to explore different approaches: The major search engines are continually adding new capabilities to help their users customize their searches.

Once you finish a search using one search engine, you might want to try another. Amazingly, different search engines find somewhat—or even entirely—different lists of Web sites. This reflects the enormity of choices on the World Wide Web, in addition to the different ways search engines categorize material and carry out their searches. It is up to you to pick and choose from various search engines until you find useful sources.

Metasearch engines search other engines for you. In other words, instead of using one search engine to look for information, you can use a metasearch engine to run simultaneous searches on several

search engines and subject directories. This lets you see at a glance which search engines returned the best results without having to search each one individually. Examples of metasearch engines are Ask Jeeves <www.ask.com>, Google <www.google.com>, and MetaCrawler <www.metacrawler.com>.

✤ PUNCTUATION ALERT: When you type or write a URL, surround it with angle brackets. For example, <www.pearsoned.ca/troyka> is the URL for this publisher's Companion Website related to this handbook. However, never use angle brackets when you type a URL in the search box near the top of your computer screen. ✤

33d Narrowing an online search for information

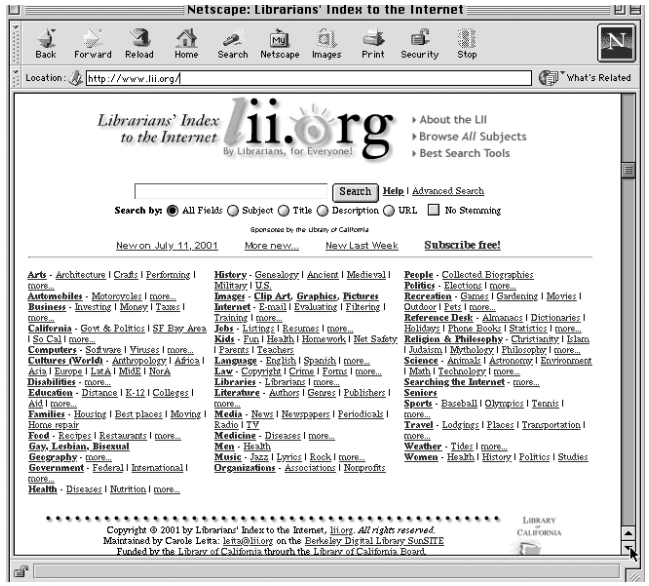
Not every hit will be what you are looking for. To help the search engine find the most relevant sites, therefore, you must narrow your search as much as possible. Subject directories and keyword searches are good ways to begin narrowing.

1 Using a subject directory

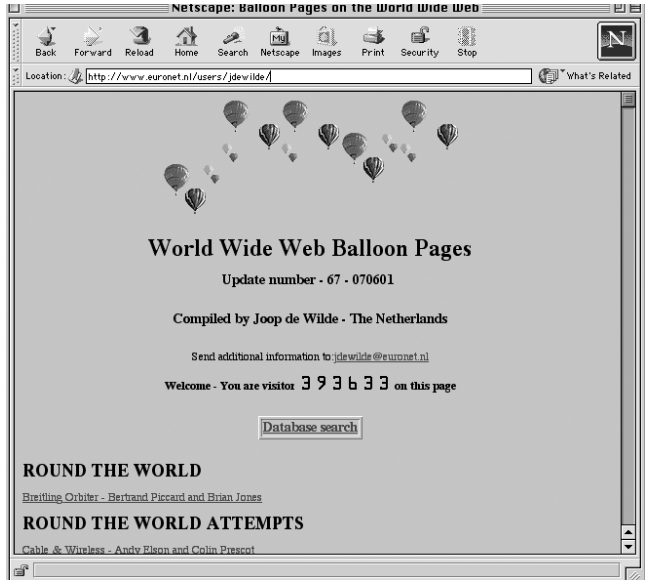
A subject directory lists categories of information with links to related Web sites. In this way, directories are similar to print subject catalogues like the *Library of Congress Subject Headings (LCSH)* (see 32i).

One useful directory is the Librarians' Index to the Internet (lii), an easy-to-use guide created by and for librarians. It groups topics both alphabetically and by category. To use this index, type its URL <lii.org/> in the search box. The first screen you see is the home page (shown at the top of page 572). Choose Browse *All* Subjects to get an alphabetical list of topics. Click on a subject that interests you, and you will get a list of Web pages. If you click on an item in the list, you will get a description of that Web page, along with subject headings you can copy down and use in your future research on that topic. In this way, subject directories let you browse subjects and start narrowing a topic.

Suppose, for example, that you are at the alphabetical list in the Librarians' Index, and you click to get to the subject *ballooning*. The new screen lists "Balloon Pages on the World Wide Web" as a link. Clicking on this title takes you to a Web page listing titles of hundreds of Web sites about ballooning (see the second screen shot on page 572). These titles are grouped into five categories: Round the World (1 title),



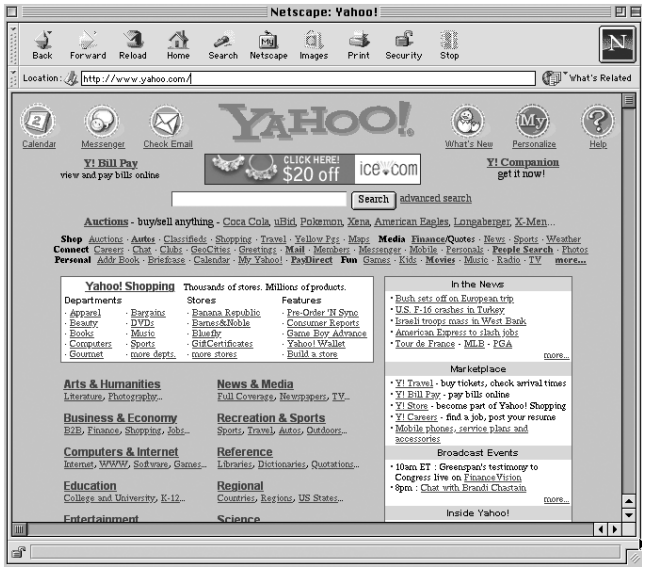
Librarians' Index to the Internet Home Page



Ballooning Site Index Found Through Librarian's Index

Round the World Attempts (18), Gordon Bennett Race (11), New on This List (23), and Published Before (over 1000). Each title is a link to its Web site. Titles of sites range from "Calgary Balloon Club" to "The European Museum of Balloons and Airships" to "NOAA Profiler-Wind Profiles Data Display" and "Building a Hot Air Balloon." If you visit a few sites, you may get ideas for an aspect of ballooning to write about. Many pages are not in English; often, however, they include an English translation at the end.

Sometimes you can use a search engine as you would an online subject directory. Many search engines list categories such as Government, Health, News, Science, and so forth. Clicking on a general category will take you to lists of increasingly specific categories. Eventually, you will get a list of Web pages on the most specific subtopic you select. These search engines also allow you to click on a category and enter keywords for a search.



Yahoo! Search Page Allows Subject Directory or Keyword Searches

Some subject directories

AskERIC Virtual Library	ericir.syr.edu
Berkeley Digital Library SunSITE	sunsite.berkeley.edu/
Canadian Information by Subject	www.nlc-bnc.ca/caninfo/ecaninfo.htm
Carnegie Mellon Libraries Online Reference Tools	www.library.cmu.edu/bySubject/CS+ECE/lib/reftools.html
Comprehensive Subject Directories	tug.lib.uwaterloo.ca/internetsearch/subjectdirectories.html
Infomine	infomine.ucr.edu/
Internet Public Library	www.ipl.org
Internet Reference Tools	www2.library.dal.ca/subjects/internetref.htm
Librarians' Index to the Internet	www.lii.org
Library of Congress	lcweb.loc.gov
Search Canada	www.searchcanada.ca/
UBC Library Subject Guides	www.library.ubc.ca/home/subjects/
U of T Internet Resources, by Subject	www.utoronto.ca/subjects.html
Virtual Information Center	www.lib.berkeley.edu
Virtual Desk Reference	www.refdesk.com

EXERCISE 33-1

Consulting sections 33b through 33d-1, carry out the following activities to practise locating online sources.

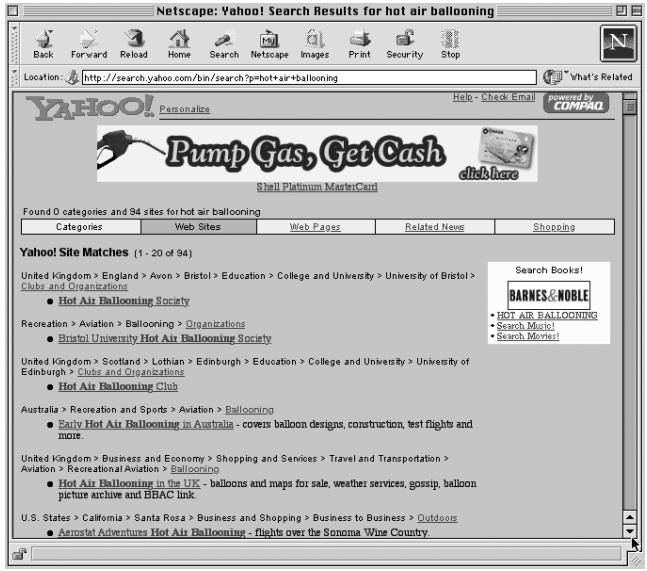
1. Use a Web browser to find your university's or college's Web site. From here, find the library's Web page. What services does the site offer? Is the page itself searchable? Is online catalogue searching available?
2. Choose a subject that interests you and begin a search. Try using a subject directory to find subtopics for the subject, and type a keyword to limit the search. Did you find relevant Web pages? If not, alone or with a peer-response group, look for ways to improve your search. Try your search again. List at least eight sites that may have useful material for your search and write next to each why it may be helpful. Keep this list to use in Exercise 33-2.
3. Try using a metasearch engine to search for the same topic you used in question 2. What differences do you note in the kinds of hits you receive?

2 Conducting a keyword search

To conduct a keyword search, type your keywords in the search box on the opening page of the search engine. The engine scans Web pages for those words, and then lists sites that contain them. Keywords that consist of very general terms may appear on thousands of Web sites. If a search engine finds thousands of hits for your keywords, do not give up. Instead, use more specific keywords.

For example, a keyword search on *ballooning* yielded 242 hits, or links to Web sites containing that word. A search for the keywords *hot air ballooning* yielded 94 hits. By narrowing more and more, a search for the keywords *hot air ballooning Canada* yielded a manageable 3 hits. The screen shot below shows the beginning of a keyword search on the search engine Yahoo!

As you become more adept at using keywords, your searches will become more directed and less time consuming. Also, the further you are in the process of drafting a thesis statement, the more specific your searches will become. The keywords in your thesis statement are likely to be good keywords for searches. In addition, the opening screens of most search engines provide help in framing your keywords



Beginning of a Keyword Search

(click on Help or the search tips feature). And, finally, most keyword search engines permit you to tailor very specific searches by means of Boolean operators, quotation marks, and truncation.

Boolean operators

Some search engines let you create keyword combinations that narrow and refine your search. These searches use **Boolean operators** (or **Boolean expressions**), the words AND, OR, and NOT, or symbols that represent these words. NEAR (which also may be represented by a symbol) is another operator used in structuring searches. Parentheses **( )** can also be used in the Boolean query box to group operators, much as they group mathematical functions. When you use Boolean operators between keywords, you are telling the search engine to list Web sites with your keyword specifications and ignore others.

Chart 145 explains Boolean operators and the operator NEAR in detail, using a keyword search on hot air ballooning as an example. Without Boolean operators, the keywords *hot air ballooning North America* would yield pages that include any of these words, and not necessarily in that order. Note the amount of weeding out that these operators allow.

Chart 145 is not meant to be all-inclusive. It is always a good idea to review the search engine's own search tips, as search engines differ in how they handle operators and formats. For example, some search engines are case sensitive, which means that they look for keywords with upper- and lower-case letters exactly as you type them. To be sure, click on the Help box or search tips feature of any search engine you use.

Quotation marks for online searches

You can also use quotation marks to narrow your search. Enclosing keywords in quotation marks directs the search engine to match the exact word order on a Web page. For example, a search on AltaVista for *"The World of Commercial Ballooning"* nets only about thirty hits, each containing the title or phrase *the world of commercial ballooning*. This is helpful when searching for a name, for example. If you search for *James Joyce* without using quotation marks, most engines would return pages containing *James* and *Joyce* anywhere in the document. A search using *"James Joyce"* would be likely to find Web sites about the Irish writer.

Truncation

Truncation allows you to look for sites by listing only the first few letters of a keyword. You can also tell the search engine to search

USING BOOLEAN OPERATORS AND *NEAR*

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OPERATOR	FUNCTION
AND	Narrows the focus of your search because both keywords must be found. If you wanted to find information on only North American hot air ballooning you might try **hot air ballooning AND North America**.
NOT	Narrows a search by excluding texts containing the specified word or phrase. If you want to eliminate Canadian ballooning from your search, you might try **North America ballooning NOT Canada**. NOT must sometimes be used with another expression, such as AND. AltaVista, for example, does not accept North America ballooning NOT Canada. Instead, specify North America ballooning AND NOT Canada.
OR	Expands a search's parameters by including more than one keyword. If you want to expand your search to South American ballooning, you might try **hot air ballooning AND North America OR South America**. Pages mentioning North America and ballooning as well as those mentioning South America and ballooning would be returned.
NEAR	Indicates that the keywords may be found in close proximity to each other. If you want to localize your search on ballooning to a specific province you might try **hot air ballooning NEAR Saskatchewan**. The sources returned would contain references to ballooning *in* Saskatchewan, but might also include pages or sites that simply contain the words *hot air ballooning* and *Saskatchewan*. The result will depend on which search engine you are using.
( )	If you use more than two expressions, use parentheses to group them. For example, **(hot air ballooning AND history) AND (Alberta OR Saskatchewan)** would find documents about the history of hot air ballooning in Alberta or Saskatchewan (and both, if possible).

for variants of a keyword by using the wildcard symbol **(*)** in place of the word ending or some of the letters in the word. For example, a truncated search for *wom*n* (or, in some cases, *wom#n*) would return hits for *woman* and *women*. This is helpful when you do not want to exclude the plural form of a noun or when a term comes in varying forms, as in the *balloon/ballooning* example.

Be careful not to use broad truncations, or you will open up your search too much. *Auto**, for example, would return *automobile, automatic, automaton*, and so forth. In this instance, using OR might be more helpful, as in *automatic OR automation*.

Most search engines recognize the symbol (*) for truncation, but a few use specialized symbols such as ?, :, or +. As always, check the Help screen of whichever engine you use for specific details.

If your university or college offers a workshop in using search engines, take it. If it does not, you might try Cornell University's *Lost in Cyberspace? A Workshop on Internet Search Engines* at <www.library.cornell.edu/okuref/websearch.html>. Chart 146 offers additional help in using search engines.

USING SEARCH ENGINES FOR RESEARCH 146

1. Do a keyword search only when you have a very specific, narrow topic with unique keywords. If you enter a general topic, you may be overwhelmed with thousands of returns. If this happens, switch to a subject directory and try a new search, beginning with the general topic.
2. Although most search engines attempt to search as much of the Web as possible, different search engines give different results for the same search. Be prepared to use more than one search engine for your research.
3. Always check the Help screen or search tips feature of the search engine you use. As with the rest of the Web, search engines add or change features frequently.
4. Keep trying to narrow your keywords. This cannot be said often enough.
5. When you do a keyword search, use the capability that some search engines have to rank, or sort, results by relevance. (Check the Help screen or other feature that gives tips on advanced searches.) When results are returned in random order, the most important source may be last.
6. If possible, limit the date range of your search. The date of a Web site tells when it was added to the Web or revised. (Keep in mind, for documenting your sources, that this date may or may not be the same as the copyright date.)
7. When you find a useful site, go to the tool bar at the top of the screen and click on Bookmark (or Favorites) and then click on Add.

➜

USING SEARCH ENGINES FOR RESEARCH (*continued*) 146

The bookmark function allows you to return to a good source easily by opening Bookmarks and double-clicking on the address.

8. Use the search history function to track the sites you visit, in case you want to revisit one you previously thought was not helpful. You can also move a site from History to Bookmark.

33e Avoiding plagiarism of online sources

Easy access to Web sources can be a tremendous help for research. But because Web publishing is unregulated, it creates special responsibilities for the online researcher. To avoid plagiarism in all of its forms, you must become a critical reader and researcher, and carefully follow the instructions in Chapter 31 of this handbook.

The special risks of plagiarism from online sources demand that you take some structured actions. Chart 147 tells how you can take precautions.

GUIDELINES FOR AVOIDING PLAGIARISM OF ONLINE SOURCES 147

- Print out immediately (or download to disk and print out later) whatever sources you find that relate to your topic. Do this once you have narrowed your research focus, so that you have fewer pages to keep track of.
- Make absolutely certain that each printout shows (1) the URL; (2) the name of the source; (3) the date you accessed the source and printed it out (or the date you downloaded the source to print out later).
- Check your required documentation style to see exactly what details you will need for listing the source in your final bibliography or in-text references.
- Note on the printout the exact reason you had for printing out that particular source. Underline or highlight sections you think will be useful to you—and indicate why.
- Never think your instructor will not know when you are plagiarizing. Today, many Web sites are available to reveal plagiarism in a ➜

GUIDELINES FOR AVOIDING PLAGIARISM OF ONLINE SOURCES (*continued*) 147

click. Most search all full and partial papers for sale on the Web or Internet, all material stored in every search engine, and academic sites that carry scholarly books, articles, and data. An instructor can see what words are plagiarized and from what sources.

- Check all the quotations, paraphrases, and summaries in your final research paper against the material you printed out.

33f Evaluating online sources

Since anyone can post anything on the Web, some sources you find may very well be plagiarized (see 31a). If you unintentionally use such a source, it nonetheless constitutes plagiarism on your part. Also, many sources on the Web have been written by people posing as experts, but giving false information. You are always accountable for the sources you choose. To evaluate a source, use the checklist in Chart 148. This checklist can help you do a general survey to separate the sources worth a closer look from those not likely to be reputable.

JUDGING THE RELIABILITY OF AN ONLINE SITE 148

RELIABLE SITES ARE FROM . . .	QUESTIONABLE SITES ARE FROM . . .
Educational, not-for-profit, or government organizations; Internet addresses ending in *.edu, .ac, .org, .gc, .gov.* These organizations should list their sources. If they do not, don't use them.	Commercial organizations advertising to sell a product (*.com*); Web sites that are advertisements or personal pages; junk mail. These sites may or may not list sources. If they do not, don't use them. If they do, check that they are legitimate, not a front for the commercial enterprise.

➜

JUDGING THE RELIABILITY OF AN ONLINE SITE (*continued*) 148

RELIABLE SITES ARE FROM . . .	QUESTIONABLE SITES ARE FROM . . .
Expert authors. They have degrees or experience in their field that you can check. Do so by seeing if the names appear in other reliable sources, in bibliographies on your topic, or in reference books in your university or college library.	Anonymous authors or authors without identifiable credentials. The reader does not know about them or their motives for posting to the site. Chat rooms, Usenet discussion groups, bulletin boards, and similar networks are questionable for the same reasons.
Reliable print sources online. Online versions of major newspapers, magazines, journals, reports, etc., posted by the publisher or in a full-text index are just as reliable as the print versions.	Excerpts and quotations from newspapers, reports, and other publications that appear on a site that is not the publisher's official site may be edited in a biased or inaccurate manner. Sources may be incomplete and inaccurate.

Most sites also contain material that will help you assess their credibility, such as a bibliography or links to the author or editor. Sites that do not contain such verifying information should be discarded, however useful they may seem. It is far better to err on the side of caution than to use a plagiarized or unreliable source.

Chart 149 gives you details on applying the general guidelines above to individual online sources.

GUIDELINES FOR EVALUATING EACH ONLINE SOURCE

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EVALUATING AUTHORITY

1. Is an author named? Are credentials listed for the author? (Look for an academic degree, an e-mail address at an academic or other institution, a credentials page, or a list of publications. The last part of an e-mail address can be informative: *.edu* and *.ac* are used in addresses at United States and United Kingdom educational sites, respectively; *.gc* and *.gov* are addresses at Canadian and United States government sites, respectively; and *.com* is an address at a commercial or business site. Be careful: Many universities and colleges now host student Web sites. In the United States, these sites often end with *.edu*, just as regular academic sites do.)
2. Is the author recognized as an authority in reputable print sources? Is the author cited in any bibliographies found in print sources?
3. Do you recognize the author as an authority from other research on your topic? Is the site cross-referenced to other credible and authoritative sites?

EVALUATING RELIABILITY

4. Do you detect evidence of bias or an unbalanced presentation from the language or layout of the information?
5. Ask: Why does the information exist? Who gains from it? Why was it written? Why was it put on the Internet?
6. Are you asked to take action of any kind? If yes, do not use the source unless you are sure the site is not trying to manipulate you toward bias. For example, the World Wildlife Federation can ask for contributions and still contain reliable information. Conversely, a hate group cannot be trusted as objective.
7. Is the material outdated? Is the date recent or was the last update recent?
8. Does the author give an e-mail address for questions or comments?

EVALUATING VALUE

9. Is the information well supported with evidence? Or do the authors express points of view without backing up their position with solid evidence?
10. Remember to read online sources using critical reading and reasoning (see Chapter 5). Is the tone unbiased and the reasoning logical?

For more help with evaluating online sources, try these Web sites:

Evaluating Internet Information (Industry Canada)
www.schoolnet.ca/ln-rb/e/training/eval.html

Evaluating Web Resources
www2.widener.edu/Wolfgram-Memorial-Library/webevaluation/webeval.htm

Thinking Critically about Discipline-Based World Wide Web Resources
www.library.ucla.edu/libraries/college/help/critical/discipline.htm

Thinking Critically about World Wide Web Resources
www.library.ucla.edu/libraries/college/help/critical/index.htm

EXERCISE 33-2

Select three of the Web sites you found for Exercise 33-1. Evaluate these sites by applying the guidelines in Charts 148 and 149. Write out your evaluation. Rank the sites according to their authority, reliability, and value, and explain your ranking.