Stay on the Path Lesson One: Searching for Treasure

Overview

This four-lesson unit on search skills and critical thinking teaches students how to *target* and *specify* their online searches to avoid unwanted results, how to judge whether a link, search result or website is legitimate or phony and how to find legitimate sources online for media works such as music, videos and movies. In this first lesson students learn how to create well-defined search strings and to use tools and techniques such as bookmarking, browser filters and search engine preferences to avoid unwanted material.

Learning Outcomes

Students will:

- learn how to avoid unwanted search results
- learn how to target and specify their searches
- learn about the basic, automated Internet filters
- use advanced search techniques

Preparation and Materials

- Arrange for computer and Internet access for all students
- Read the *Search Skills* teacher backgrounder

Photocopy the following:

- *Introducing Search Skills* handout
- *Narrowing Your Search* handout
- *Search String Practice Sheet* handout
- *Lost Internet Treasure: Clues* handout

Procedure

Broad search terms

Ask students: "What kind of websites would come up if I typed only the word 'cats' in a search engine?" (Answers might include pages about the animal, pictures of the animal, videos of the animal, news, etc. Make sure that the musical "Cats," sports teams such as the Hamilton Tiger-Cats and similar results are raised as well.) If possible, have your students try a search for 'cats' online and report what they find to the class. If students are able to do this, they will probably notice that many search engines automatically suggest additional or related search terms; explain that although these can be very useful, they can also be misleading and ask students not to use these auto-suggestions for the time being.

Introduce or review basic notions of the types of things that get put online, how they are put online and who posts this information. Specifically, anyone with access to the Internet can create a blog, webpage or commercial site, or upload videos and images. There are no universal rules as to the kinds of content allowed online, although many sites have policies in place about inappropriate materials (YouTube, for example). Of course, illegal content (selling drugs, child pornography, etc.) gets removed but new sites appear all the time. (More information on this can be found in the *Search Skills* teacher backgrounder.)

Finally, ask your students for examples of typical unwanted search results and complete the list using examples from the *Search Skills* backgrounder.

Introducing search skills

Distribute the *Introducing Search Skills* handout and review it with students. Demonstrate how different search engines return different results by typing the same keyword (for example, "treasure") in Google, Yahoo and Kidsclick.

In groups, pairs or individually have students do an online search on a classroom computer to answer the question: "How would you search for tips for the game "Lego Harry Potter" on the Nintendo DS?"

- Students are free to use any of the search engines listed in the *Introducing Search Skills* handout.

As they conduct their searches, students must list and identify as many unwanted or unrelated results as they can within a five-minute timeframe.

As students are doing this exercise, circulate among them and explain to any who are having difficulty that generic search terms return lots of results that don't always point to pages related to the search. For example, if they were to only use the keyword "Harry Potter", it would return results pointing to movies, novels, Lego, video games, animation, business articles, Twitter accounts, clothing, fan projects, museum exhibitions, etc. – all valid, but so much information that finding exactly what they need will be like finding a needle in a haystack.

Once the activity is over, ask students to share some of their unwanted results and write them down on the board. Then ask which search engines they used and have them compare results. Which gave the most results? Which gave better-targeted results?

Explore the keywords they could have used to minimize the unwanted results. Referring to the *Introducing Search Skills* handout, discuss other ways to search the Web (for example, using databases such as a local library or an online

database that focuses on the subject, like the Harry Potter Wiki).

Ask the students to try the same keywords as before in the Harry Potter Wiki and compare the results.

Finally, discuss when it might be more useful to use a full-Web search engine and when it might be more productive to use a database. For instance, students might find better results looking in an online dictionary for word definitions, looking at a museum like http://www.louvre.fr/selections for works of art, looking at a sounds database like http://www.findsounds.com/ for sound effects or looking in their local library database for books.

Treasure Hunt

Demonstrate how the search in the previous activity for "Lego Harry Potter on the Nintendo DS" could have been simplified and completed faster using better keywords. Also show how those same keywords bring different results in different search engines, and using image, video and news search options.

Distribute the *Narrowing Your Search* handout and introduce the basic filter techniques: SafeSearch, bookmarks, and special filtering software (like K9 or the "Web of Trust" plugin). Explain how these filter technologies can help further remove unwanted results.

Give an overview, and examples, of the advanced search techniques and operators in the *Narrowing Your Search* handout.

Once this is done, divide the class into groups who become "Ships of adventurers" looking to find a lost Internet treasure. Have each "Ship" name itself and nominate a captain to be the spokesperson for the group. (Alternatively, you could select the captains and to have them choose ship names from a list, or randomly pick the captain and the ship names from a hat. Possible ship names from the Canadian Coast Guard include: The Griffon, The Amundsen, The Cape Storm, The Cygnus, The Neocaligus, and The Shamook.)

Give students copies of the *Search String Practice Sheet* and the *Lost Internet Treasure Clues* handout, which contains clues to a location somewhere in Canada. This cannot be found through a simple search string, so students will have to apply the new techniques they've learned to find it. The team that finds the "treasure" first wins and gets to show the other teams what they did to find the information.

1. To get your students started, have them first try to put together an effective search string on the pirate Blackbeard, using the example provided on the *Lost Internet Treasure: Clues* handout (the answer is: **blackbeard OR "edward teach" –movie.)**

2. Once this is done, have students tease out possible key words and phrases from the cryptic clues in the *Lost Internet Treasure: Clues* handout and record them on their *Search String Practice Sheet*.

3. Next have students try out their search strings until they find the location that the clues are pointing to.

4. Finally, to wrap up the activity and the lesson, when the first team has successfully identified **Sable Island** as the mystery location, have the winning captain present the team's search string(s) and findings to the rest of the class. Each of the other captains will then present their group's search strings and any difficulties they encountered.

Introducing Search Skills

The Internet is a great source of information on all kinds of topics. But sometimes it's *too* good: there's so much information out there, it can be hard to find just what you're looking for.

Most of the time we use **search engines** like Google, Bing or Yahoo to help us find information. Search engines catalogue what's on the Internet, but they're not very smart – they only give you exactly what you ask for. If you're not specific, you won't get the information you want.

Major search engines will also give you some suggestions for search strings as you start typing your keywords. For example, if you start typing "Jacques", the search engine may display "Jacques Cartier" as one of its suggestions. This can be very useful in cases where you are not sure about the spelling of something but, because these suggestions are based on what other people have searched for, they can also be misleading. (Imagine, for instance, if you were searching for Samuel de Champlain and the search engine decided you wanted information on Samuel L. Jackson.)

No single search engine can cover everything on the Internet and different search engines will give you different results. For that reason, it's a good idea to use more than one. If you can't find what you are looking for using a particular search engine, try another or a search engine that compiles results from many different search engines (like www.dogpile.com). Three of the main search engines are:

1. www.google.com
2. www.yahoo.com
3. www.bing.com

There are also some kid-friendly search engines that *filter* their searches (by blocking out stuff they think isn't right for kids to see) or *curate* content (by making lists of things they think are good sources for kids):

1. http://www.kidsclick.org/
2. http://www.factmonster.com/

Most of these search engines have advanced options that let you look for certain types of information like images, news articles and videos.

There is, however, a lot of information that search engines **don't** catalog. For example, the books in your local library's database, the collection at a local museum, or the information in an online dictionary such as the Larousse (http://www.larousse.com/en/dictionaries). In those cases, you have to search the information they have directly from their websites.

Narrowing Your Search

There are ways you can pre-filter search engine results before you even type in a keyword! Once installed or activated, these filtering programs will automatically filter out most of the inappropriate stuff on the Internet. You don't have to do anything special: just type in your search as you normally do.

Although search engines are getting smarter at guessing what you want based on the keywords you type in, sometimes you need to be more specific in your search and give the search engine additional instructions to help it find exactly what you are looking for. You can do this in two ways: by using the "advanced search" feature of the search engine or special keywords.

Automatic Filters

Here are some of the ways you can have your computer automatically filter websites:

- Turn on the "safe search" option:
    - In Google, this is done by visiting www.google.com/preferences and then checking the box marked "Filter explicit results" and then clicking the "Save" button at the bottom of the page.
    - In Bing, visit http://www.bing.com/account/general and select the "Strict" or "Moderate" button.
    - It's only possible to set Safe Search settings in Yahoo! if you have a Yahoo! account. If you do, you can log in, go to http://search.yahoo.com/preferences/preferences and select "Strict" or "Moderate".
- Install a piece of software that will filter the sites that any search engine returns.
- Use bookmarks – that way, you know exactly where you are going!

Many of these filters only keep out things that are offensive, so even though you get fewer results, they may not be **better** results. For better results you need the tools below.

Advanced Search Tricks

The words you use in a search engine are called your **search terms**. All of them together are called a **search string**. In general, the **more precise words** you include in your search, the better your results will be.

When you type more than one keyword in a search engine, like:

big yellow balloon

the search engine will return any pages it finds that have **all** the keywords you typed somewhere on the page – even if these words aren't next to each other! For example, if a page has this sentence:

Eric had a **big** dream: one day he would rent a hot air **balloon** and fly over the **Yellow** River in China.

it will show up in your results.

Those words aren't even in the same order! You only want pages that talk about big yellow balloons — how can you tell this to the search engine?

You can tell most search engines to do a more specific search: most search engines will let you add special symbols and words to your search that limit the results. These are **" "**, **–** (or **NOT**), and **OR**.

- You can search for a whole phrase by putting quotes around it. This means you will get only pages with that exact phrase.

- For example, if you type **"big yellow balloon"**, you will get pages that have those three words together in that order. This means that you won't get pages that have the same words in a different order (for example "yellow big balloon" or pages with big or yellow or balloon scattered on the page).

- Placing **–** or **NOT** before a word means that you will only get results that **do not** include that word. This helps eliminate many unnecessary results. For example, if you wanted to see pages that talked about games but not video games, you could type one of these search strings:

  Example 1: **game –video**

  Example 2: **game NOT video**

- Including **OR** between two words means that you will get results that include either word. This is good when you have two words that mean the same (or almost the same) thing that a search engine might not recognize. For example, it can be useful when there are two different names for the same thing or person:

  Example: "Katniss Everdeen" **OR** "Jennifer Lawrence"

  Example: Blackbeard **OR** "Edward Teach"

  Example: Holland **OR** "The Netherlands"

You can also do the same types of searches without using these special symbols by choosing the "Advanced Search" feature of most search engines, but it's usually faster and easier to use special keywords in your search string.

Example of a Successful Search String

Let's say you want to find out why your dog's nose is hot.

You might start just by entering the search string: **hot dog nose**

With these keywords you will only get links to pages that include all three words (but they won't always be next to each other).

Unfortunately, you are probably getting lots of links about hot dogs (the food). To make sure you get only pages that don't include the words "hot" and "dog" together, in that order, you can enter:

hot dog nose –"hot dog"

But suppose there's a band called "The Dog Noses" whose latest song is called "Hot Potato". A lot of your hits might be about them instead of your topic, so you can add a limiting term: **–band**. Your search string now looks like this:

hot dog nose –"hot dog" –band

Now you're getting better hits for your topic, but the information might still be limited: what if you also want to know about puppies' noses getting hot? You can choose the **OR** operator to tell the search engine to look for dogs OR puppies:

hot dog OR puppy nose –"hot dog" –band

Hey! That led right to an article with just the answers you need: http://pets.webmd.com/features/dogs-hot-nose.

Search String Practice Sheet

List the keywords you tried:

Name the two search engines you used:

List the operators you tried:

List the search strings you tried:

Lost Internet treasure: Clues

1. A Canadian island in the Atlantic Ocean
2. There are no trees on this island
3. The island is inhabited by large land mammals
4. There are no deer on this island

Example: you want to find out more information about the pirate Blackbeard and you want that information to be factual (not from a movie). Here's a list of operators and keywords to use. Try them out in a search engine and put them in the correct order:

Blackbeard, movie, Edward Teach, OR, – (minus sign) and " " (quotation marks)

Treasure search string:

Note: You don't have to use all the boxes for your search string but remember that, usually, the more relevant search terms you have, the better the results.

Name of the Canadian island: _____

Search Skills Teacher Backgrounder

General searching best practices

Search engines don't index the entire Web — a lot of the information that's available sits in databases or behind pages that require users to log in. Furthermore, all search engines index the Internet using different algorithms, which means each will have a slightly different "snapshot". With this in mind, you will get better results by using different search engines concurrently.

Your search results are only as good as your search terms: sometimes you have to do a few searches with different keywords to find what you are looking for.

To do truly powerful searches, use special keywords (search operators) that allow finer filtering of the results. Here are a few of the most useful:

NOT or **–** eliminates results including the word that comes next (e.g. dog NOT poodle, or dog –poodle)

OR gives you results with both of the search terms on either side of it. This is good when you have two different options or when you're looking for two things that a search engine wouldn't recognize as synonyms. (For instance, if you were trying to decide whether to go camping in Ontario or Newfoundland you could use the search string camping Ontario OR Newfoundland. Without the OR you would only get results that included both Ontario and Newfoundland.)

Quotation marks give you results that include words in a particular order. If you were looking for references to Blackbeard the Pirate under his real name, Edward Teach, you'd get a lot of results that had both "Edward" and "teach" that weren't relevant. By putting "Edward Teach" in quotes you only get results where the two words appear in that order.

Most search engines also have an "advanced search" feature where all you need to do is to fill out a more advanced search form and choose a few options.

This 3-step Web search strategy was adapted from Google's *Search Education* course and other best practices on the Web:

Pick the right search keywords

1. Focus on just the key ideas of your question.
2. Think about how an author of a webpage might have presented/written the information.
3. Sometimes you need to do a few searches and explore your results in order to find the information you are looking for.
4. Use specific keywords related to the context of your search to help to refine it.
5. Use reverse dictionaries or a thesaurus to find other search terms.
6. Try applying specific terms in your search that are often used in the context of your question. For example, using common sentence structures related to your question might help you to find information, such as using "Once upon a time" with your keywords when looking for fairy tales.

Ask yourself:

1. What unique terms can I use that will help me search effectively?
2. How can contextual terms help me target my search for what I need?

Understand your search results

1. Look at the number of results that your keywords return: if it's in the millions, you might need to choose better keywords.
2. Each result "block" has a lot of useful information to help you decide if it is what you want. Look at the title, the URL and the text summary.
3. Remember that the summary is not a full summary of the page but an extracted snippet of the page (by a program) and it may not give an accurate representation of what is in the site.
4. The URL can also give you specific information such as the country where the site is hosted (".ca" for Canada), or if it is hosted by an academic institution (".edu").

Evaluate the credibility of your search results

On the search results page:

1. Look at the title of the result: does it match the information in the summary?
2. Look at the URL: does it look like it is related to what is in the title and the summary? Does the domain name reflect an organization you can trust?
3. Remember that page rank or the order a result appears does not equal credibility.
4. Try to triangulate your findings (find 3 similar sources).
5. Look for fact-checking sites and "do one more search".

On the website:

1. Ask yourself: How might the tone or style of the writing impact its credibility?
2. Look for misquotes or falsified images.
3. Review the following sections (where available) on the website itself: the "About us" page, the "Contact us" page and the "site map".
4. Try finding specific text on the page (use ctrl-f or Command-f to find text on the page).

If you can't find enough information on the website, you might also conduct a search on a WHOIS provider to drill down on the person or company who's behind it.

2. Pre-filtering the Web

There are some ways that you can pre-filter your results or that your results may already be pre-filtered:

- Your school or school district might use filtering software that automatically blocks access to certain websites (usually pornographic sites).

- You can install commercial software on a specific computer that will block access to specific sites.
- It should be noted that in the two cases above, although access to some sites is restricted, they may still show up in your search results.
- All major search engines have a "safe search" option that filters out inappropriate websites from search results. However, this feature does not restrict access to those websites – it merely filters them out from search results.
- Finally, another way to restrict unwanted websites is to create or use a list of bookmarks to appropriate and relevant websites.