

*Find exactly what you need more quickly*

## Simple Tips for Easy Searching

Not long ago, looking up obscure, foreign, or old information was difficult and time-consuming. It often involved a trip to the library with hours spent poring over card catalogs, poking among dusty shelves, and thumbing through reference books.

With the limitless universe of data online and modern search engines like Google, searches have become almost effortless. But you can still get wildly distracted, stuck in blind alleys and dead ends, and sometimes, if you can't put into words exactly what you're looking for, frustratingly never get anywhere near the knowledge or item you so desire.

Library skills, particularly the proper use of the **card catalog**, used to be taught in school. Perhaps they should teach how to use today's equivalent, **search engines**. Because there are better ways to find things than entering the first thing you think of and letting autocomplete guess at what you intend.

There are a whole set of skills and an array of simple tricks that can make searches easier, quicker, and much more precise. These benefit not just students, but anyone who needs to look up data online. And that means just about everybody.

### How computer searches work

All search engines rely on the same basic underlying principle. They look for regular expressions: sequences of characters that form meaningful patterns that appear in data arrays. These are most often words in written texts but they could be numbers in tables of scientific observations or combinations of letters and numbers, such as street addresses.

One of the earliest such methods to find search patterns was the UNIX command-line tool called **grep** (from "globally search a regular expression and print"). **grep** churns through a data set, character by

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— **Jamii Corley, SWCP Vice President**

character. It compares the entire string with the particular sequence of the pattern that is sought, and then lists all the matches found at the end.

Since all information in computers, including words, are ultimately sets of 1s and 0s, they can be manipulated by mathematical operations according to Boolean logic. This describes logical relations between things in much the same way as ordinary arithmetic.

In **Boolean algebra**, you can't add "duck + soup" like a number, but you can look for the strings for "duck" and "soup" so that you find only the occasions where "duck soup" occurs together. By assigning the values of "true" or "false" to each operation (expressed binarily as "1" or "0"), Boolean algebra allows you to perform three basic logical operations: AND, OR, and NOT, which can be combined into more.

This simple toolbox allows not only locating information but also using it. Its powers extend far beyond searches. Everything you enter online, how each page behaves, depends entirely on Boolean logic.

Variations on the algorithms over the decades are still extending their capabilities. However, there's a basic limitation. Searches today can only find what is there, not what it means. That requires a lot more related data and a certain amount of deduction.

The development of **semantic searching** will require artificial intelligence and self-learning to come to full fruition. AI may also enable searches by images, as search engines also do a poor job of comparing pictures. They rely instead on descriptions in the text or captions, or in hidden data about the image.

### Evolution of search engines

The first web search tools simply indexed users and servers, beginning with a list kept by Tim Berners-Lee, the inventor of the World Wide Web. Before the Web became popular, there just wasn't enough content online to bother sifting through it.

Specialized catalogs led to curated directories of hand-indexed webpages. **Yahoo!** was the most famous of these, but soon no human editors could keep up with the early explosive growth of the web.

In September 1993, the first primitive search engine, the long-gone W3Catalog, was launched, and soon the race was on. The process of indexing pages became automated with **web crawlers** or spiders, programs that browse the contents of webpages, using the pages' own links to move between them.

Founded by a couple of Stanford geeks in 1998, **Google** is just 20 years old but is the most-used search engine in the world. The platform's had at least 10 major updates. In 2017, the **company earned 109.65 billion dollars** mostly from advertising powered by its search engine. That vividly demonstrates not only how important finding stuff is, but ranking it, also.

For as the World Wide Web grew to millions and then billions of pages, it soon became obvious that even the best content was useless if it could not be found. To locate those golden needles in such an immense haystack needed more than just indexing.

While human curators could rate content quality, automated systems could not. They relied on other data, like how many links the page had. They could tell what people thought of it by the number of links leading to it, too. Now, many secret factors figure into Google's ranking system – including, of course, how much advertisers are willing to pay.

### A dozen tricks to make searching easier

Having Google guess what you're looking for can be amusing. But it's better to use short, specific terms directed at your interest to limit those ranking features that might unduly affect general results.

Google has a variety of settings you can change for **Advanced Search**. But many of these settings can be used by slightly altering the text you enter in the search bar to limit or extend the search.

1. Search for exact phrases by putting them inside quotation marks (" "). Looking for **Game of Thrones** will bring up the show, but also every use of "game" and "thrones". Entering "**Game of Thrones**" restricts it to the HBO gorefest.
2. Finding either this or that. Put the word **or**, or the vertical line (|) between terms. Dining choices can be indicated by **chile red | green**.
3. Find alternatives with synonyms with the tilde (~). So **healthy ~foods** brings up healthy principles, recipes, and dining options as well as all those delicious green vegetables.
4. Search within websites with keywords. Simply enter the "**site:**" followed by the name, a space, and by a keyword related to the information you want. So **site:swcp.com ds1** lists all of Southwest Cyberport's fine highspeed products.
5. Fill in words you can't recall with an asterisk (\*). Can't remember Kirk's middle name? Enter **James \* Kirk** to get all James Kirks with middle names, including the captain of the Enterprise.
6. Multiple missing words can be found by using **AROUND** followed by the number of words in parentheses. Google's smart enough to correct mistakes too. Entering **you're not AROUND(2) these droids** doesn't add "looking for", but Google will correct it to "**these aren't the droids you seek.**" And it will even list the mis-

quote that became a meme: **these aren't the droids you're looking for**. Cool.

7. Learn the meaning of words, even slang, by putting **DEFINE:** before the term. **DEFINE:leet** will give you a definition of an old English court, but also the informal code used on the net.
8. Indicate time frames by an hyphen or two dots between the dates. "**Dr. Who**" 1963-5 will bring up just the First Doctor and nobody else. So will "**Dr. Who**" 1963..5. This can also be used for any range of numbers like "**Dr. Who**" 1-12, which will list the Doctor's male incarnations.
9. Find key words and names within titles of articles. Before the name, type **intitle:** not followed by a space. You can also find them in web addresses with **inurl:** . So **intitle:Lost Ark** will locate oodles of pages about the Raiders movie and every other page with "Lost Ark" in the title.
10. Compare things by putting **vs** between terms. This abbreviation for "versus" allows you to actually compare apples and oranges. Or even **Star Trek vs Star Wars** for some real controversy.
11. Prevent unwanted results by indicating them with a minus sign (-) before the results to be filtered out. For instance, avoid annoying lunatics by looking for **moon landing -hoax**.
12. You can convert units, do calculations, use a stopwatch or a timer just with the search bar.

Most of these settings as well as others can also be found on Google's **Advanced Search** page, which is accessed from the **settings** heading beneath the search bar on any results page.

Finally, look outside the box once in a while. Other engines with different inputs and algorithms may have different results. Along with other major ones like **Bing**, **Ask.com**, and **Yahoo**, there are hundreds of **specialized search engines** as well.

More importantly, what Google and the others show you is based *not* just on their ranking of pages, but of *you*. They tailor results to give you what you want from what you've wanted before. We're trapped in **filter bubbles** that screen all we see online. For a view outside, try **DuckDuckGo** for Google-based searches that don't rely upon your personal information.



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