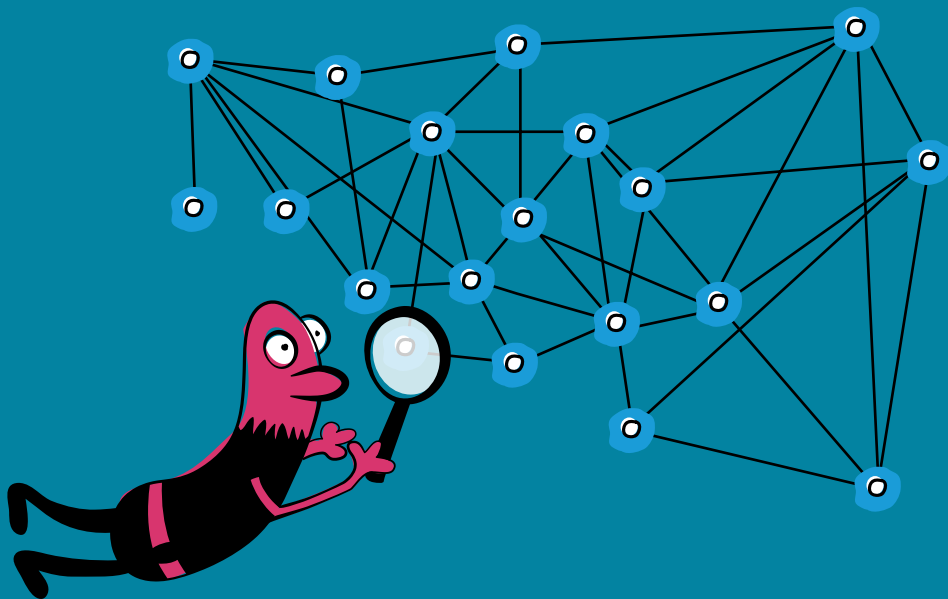


Of crawlers and algorithms and why search engines are not always right

How a search engine works and how you can search better



Together, for a better net.
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How deep is the sea? What language do people speak in Zimbabwe? What does a whale eat? You can find answers to these questions on the Internet. Search engines can help you.

You can think of the Internet a bit like a giant library.

However, the Internet is not as tidy as a library. There are 1.9 billion web pages that people have put there. No one can remember that many pages. But search engines know their way around this huge mess.

How does the search engine know so many websites anyway? How does it know which hits match your search? And why can it do that so quickly?

We'll explain that to you here. And we'll give you a few tips that will help you to search safer and better.

There is a lot to discover!

Have fun with it!

Melanie Sascha Christine

Melanie, Sascha and Christine
from the Open Search Foundation



Many crawlers and a table of contents make the internet search fast



If you enter your search word and press „search“, you will get a list of pages that contain the word you are looking for. How does it work so fast?

The search engine has a trick up its sleeve: **Long before you start your search query, it has already sent its search robots through the World Wide Web (www).**

- ➡ Search robots are automatic programs that are also called „crawlers“. Day and night they crawl through the www and search for webpages. When they find a link on a webpage, they follow it to the next page.

They store the web addresses of the pages they find together with important keywords in a kind of giant table of contents, the „search index“.

- ➡ The search index is like a huge long list with many topics and keywords. This list also shows how the pages are connected.

This way, the search engine always has an overview of which websites exist and what content they offer. When you then press „Search“, the search engine no longer has to search the entire www. It only searches in „its“ table of contents, i.e. the index. And that's lightning fast.



Algorithms sort the results and determine what you get displayed

The search engine usually finds not only one entry for each word, but a very long list. If you search for „moon“, for example, there are about 196,000,000 results. That’s an incredible amount, isn’t it?

But how does the search engine decide which websites match your search term? Algorithms are responsible for that. They select from the millions of webpages those that they think match your search query and you.

➡ An algorithm is a kind of instruction manual written by a human being for a computer. For example, an instruction is called: „Count how many times a word appears on a website.“ If the word „moon“ appears quite often on a webpage, it is probably important to your search.

Which page is at the top of the results list also depends on the algorithm of the respective search engine. This can be the most popular websites that match your search query or particularly current websites or news.



Do you sometimes have the feeling that the search engine knows in advance what you want to ask? No sooner have you typed in a letter than various suggestions magically appear below the search field...

This function is called „autocomplete“. What is suggested to you there are not necessarily the best keywords. This is simply what is searched for a lot by other people and matches your input.

So algorithms influence what content you see online and what you see first.

But how exactly algorithms work is often secret and not so easy to find out. Because search engines like Google only reveal a small part of what exactly their algorithms do and what they are capable of.

➔ So we don't even know why you are shown the results that Google gives you, and why they are sorted that way and not differently.





Maybe there are much better results?

Even search engines make mistakes

Thanks to the crawlers, the index and the algorithms, you now have a list of all the webpages that contain your searched word. These are the search results. **So that you know in advance approximately what the found webpages are about, you will see a page title and a short description for each of the webpages.**

Now you can decide which of the many pages you want to visit.

For this you should know:

-  Search engines can also offer false results that are not correct.
-  Anyone can put a website on the web. Even stupid people or people who are up to something bad. The search engines cannot recognize that. Therefore, the search results can sometimes include a rotten apple.
-  There are websites that look very trustworthy, but just want to make you feel unsettled or simply claim things that are not true!
-  Different search engines may deliver different results. Therefore, when searching for information, it is good to use different sources when searching for information.



Tip 1

Pay attention not only to the search results at the top

The best search results are not always at the top. So don't click wildly on the first hits, but look closely.

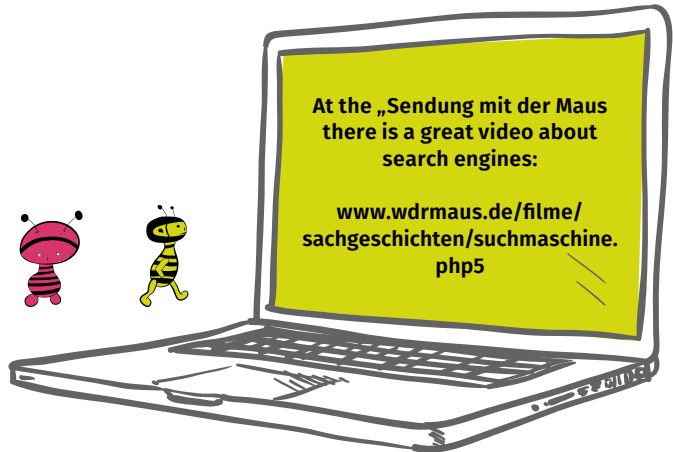
- ➔ Read the title of a search result and ask yourself: does the title match my search query?
- ➔ Then read the description that is under the search result and consider whether it is a suitable search result.
- ➔ See also the hits below or on the next page.
- ➔ Most of the time, advertisements say „ad.“ Sometimes advertising also looks like a normal search result.

So better look twice!

You decide which websites you want to visit

Fortunately, you don't have to let the algorithms dictate anything to you, but can determine your own actions. The important thing is that you don't just look at what is suggested to you.

Look at everything that interests you and that yourself find important. This means, for example, that you have to do detailed research. Use different sources of information (e.g. encyclopedias or websites) if you want to know something. **Because algorithms pre-sort everything you see, you may miss important information.**





Tip 2

Be critical and check every search result

Because there are so many websites where you can't immediately see who is offering the website and if the information is correct, you should always take a good look.

- ➡ When you click on a link, the first thing you do is get an overview: Does the page match what you were looking for? Does the page look credible? Who is the sender? Is the page up to date? Is the page trying to sell you something?
- ➡ Always look on at least two different websites and check the information you found, from other sources as well.

There are many search engines, not only Google



The best-known and largest search engine is Google. Nine out of ten people in Germany use it. That's why people call it „googling“ when they search the Internet. However, this does not mean that Google is always the very best search engine.

There are also other search engines. For example, they are called Bing, Qwant, DuckDuckGo, Startpage, Ecosia, MetaGer or Swisscows. Surprised that there are so many?

Like Google, the other search engines are made for adults – not children.

The endlessly long hit lists can be very confusing. And because the search engine can't tell whether a child or an adult is searching for something, inappropriate or dangerous websites can also be displayed.

➔ **That's why there are search engines specifically for children.** Children's search engines provide pages written especially for children. They filter out websites that can scare you or are forbidden. With child search engines, you can easily find the content you're really looking for.





Tip 3

Use child search engines

Here are three search engines specifically for children. They are very different. It's best to just try them out and see which one you like best.

➔ Blinde Kuh
www.blinde-kuh.de

➔ Frag Finn
www.fragfinn.de



➔ Helles Köpfchen
www.helles-koepfchen.de

Sometimes you may not find what you are looking for using a child search engine. Before you use an adult search engine, ask your parents. It's best if you search together.

Search engines know a lot about us

Search engines like Google not only remember which words appear on which web pages. They also store what we searched for earlier and which websites we visit. They also remember where we are when we search and much more. **And because we ask Google & Co. so much, it knows a lot about our thoughts and wishes.**

They take the information they've gathered about you to determine what search results to show you. This can be handy because you might find what you're looking for faster. But there are also concerns.

-  Therefore, your search results often look quite different from those of your friends, even if you entered the same search terms.
-  Many people say that it is not good for a search engine to collect and use so much personal data about us. Because it could control the results in such a way that it influences our decisions without us noticing.




Tip 4

Protect your privacy

If you think it's silly for a search engine to want to know so much about you, here are some things you and your parents can watch out for

- ➔ Use a child search engine.
- ➔ If you want to search with an adult search engine, use one that collects no or less data. These are, for example, DuckduckGo, Qwant, MetaGer, Ecosia or Startpage.
- ➔ The program you use to surf the Internet, the browser, is also important. Privacy-friendly browsers include Firefox, Brave, and Safari.
- ➔ When you're logged into Gmail or YouTube or any Microsoft service, Google and Microsoft link everything you do to your personal profile. So: Always log out!

Here you should ask your parents because they may have to make some settings in the programs for you.



Search engine algorithms don't just control what you see. Sometimes they also suggest what you should buy. The search engines are paid for showing you such ads. That's how they earn their money.

And because they know so much about you, they show you ads that match exactly what you like. That can influence your decisions. So, ads are often customized to a person's preferences so that more ads are clicked and more products are sold.



Smart Search: Our cheat sheet for you

Here are a few search tricks that will get you there faster! They work for many search engines.

- ➔ If you get too many search results, you can enter two or more keywords in the search field to narrow the search. Example: **Animals deep sea**
- ➔ You can exclude certain search results. With a minus sign (-) directly in front of a term, you show the search engine that you are *not* searching for this word. Example: **Dogs -Dachshund**
- ➔ If you want to find a very specific group of words in a certain order, you can put quotation marks. Example: **„Blue wiener“** (this is a type of rabbit)
- ➔ You can also combine the search tricks in any way you like. Example: **Animals Australia -Kangaroo**

Tip 5

Your search didn't turn up anything at all? Then you can try other search words. And see if you might have mistyped! Typos can cause you to get completely different results.





Many more tips and information
for you and your parents can be found
on our website:

**[opensearchfoundation.org/
infos-fuer-kinder](https://opensearchfoundation.org/infos-fuer-kinder)**

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Contact

Open Search Foundation e.V.

Together, for a better net.

yourinfo@opensearchfoundation.org

www.opensearchfoundation.org

Schorn 6, 82319 Starnberg