

Step 4. Search

You have listed the queries and search terms and have chosen sources of information. Now you can really start searching. In this step you will learn a number of techniques to search more effectively:

Search techniques

- Simple or advanced search
- Combining words: boolean search
- Exact word combinations and proximity operators
- Truncation and wildcards
- Keywords
- Thesauri

Search methods

- Snowball method
- Citation search
- Expand and limit search terms
- Improve search results

Search techniques

When you search with a search engine or in a database, you often just type in some words. With simple questions, you will usually find the answer you are looking for. However, this is often not enough. Use the extra possibilities offered by search engines and databases and you will get a much better result. At the same time, the Saxion Library catalogue searches a part of the databases. It is therefore important to search with as specific search terms as possible, otherwise you will get too many results (see step 4: Improving search results).

Because a search engine or database does not understand an 'ordinary human language', you have to adjust the search query. You will learn a number of techniques that you can use for this.

Simple or advanced search

Most databases and search engines have a simple search bar on their home page. In this search bar you can enter a single search term, but you can also combine search terms, for example:

Students AND Saxion

Usually there are even more extensive possibilities. These can be found in advanced search or advanced search.

With advanced search you can formulate your search much more precisely, combine or exclude terms. You can enter more search terms at the same time, in different search fields.

Advanced search in the Saxion Library catalogue

SAXION LibGuides/Lijsten

Zoek in de collectie van Saxion Bib
Search the collection of Saxion L

[Log in met je Saxion account / Login with your Saxio](#)

[List of databases](#) | [List of LibGuides](#) | [Advanced search](#)

Search for:

Keyword

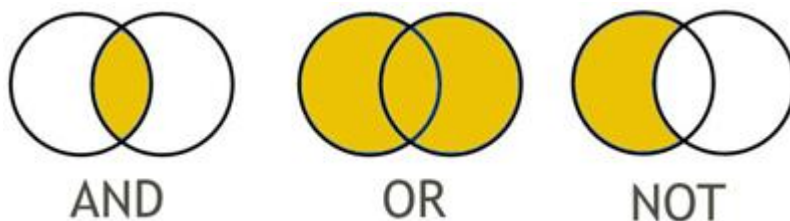
and Keyword

and Keyword

Combining words: Boolean Search

- Both terms must appear in the search result (AND),
e.g. **soccer AND Amsterdam**
- At least one of the terms must occur (OR),
e.g. **soccer OR tennis**
This is also useful for synonyms, e.g. **senior citizens OR elderly people**
- A term must be excluded (NOT),
e.g. **sport NOT soccer**

Graphically, the relationships between search terms are shown in this way:



In most databases and search engines you will find a search form in which you can choose one of these options. You can often combine the different options.

Example

You are looking for information about the link between the greenhouse effect and coal-fired power stations. You want to look up publications in which **both terms** occur.

coal fired power plant	TX All Text ▾
AND ▾ greenhouse effect	TX All Text ▾
AND ▾	TX All Text ▾

Suddenly you realize that *global warming* is an important alternative term for *greenhouse effect*. You adjust your search so that the term *coal-fired power plants* is combined with **at least one** of the terms *greenhouse effect* or *global warming*.

coal fired power plant	TX All Text ▾
AND ▾ greenhouse effect OR global warming	TX All Text ▾
AND ▾	TX All Text ▾

Note: If you combine both AND and OR, you will need to place the OR combination within one search field for most advanced search forms (picture above). If you don't, the search engine won't know which search terms should be combined first and you won't get the intended results.

At the moment, you're not interested in the political aspect. You want to find articles about *coal-fired power plants* in combination with the terms *greenhouse effect* or *global warming*, but **without** the term *politics*.

coal fired power plant	TX All Text ▾
AND ▾ greenhouse effect OR global warming	TX All Text ▾
NOT ▾ politics	TX All Text ▾

Create search strings

In many databases and some search engines you can also formulate more **complex search queries** by combining terms.

To indicate what should be combined with AND and what with OR and in what order, you should use round brackets.

Example:

If you search like this

credit card AND (security OR fraud risk)

you'll find documents about the **security and/or vulnerability of a credit card to fraud**.

If you remove the brackets like this:

credit card AND security OR fraud risk

you will also receive documents about the susceptibility to fraud *without* the credit card in it.

Exact word combinations and proximity operators

Exact word combinations or whole sentences can be put between quotation marks. This combination or sentence must then appear exactly as it appears in the document you are looking for. This is very useful if you are looking for a name or a compound term.

Note! This way, you can miss out on articles that are about your subject. For example, you are looking for the exact combination of words

"Childcare Amsterdam"

With this combination you will not find the articles with

"Childcare in the suburbs of Amsterdam"

You can find those articles with the search query

Childcare AND Amsterdam

Proximity operators

Proximity operators can be used to indicate that your search terms should appear close together in the document. If the search terms are close together, they probably have something to do with each other. The most commonly used proximity operators are:

NEAR: Used when the order in which the terms appear in the search result is not important. For example, child care NEAR Deventer.

ADJ: is used if the terms must appear in a certain order in the search result.

E.g. *Childcare ADJ Deventer* (first childcare, then Deventer).

You can often specify how many words can be placed between the search terms used in the found document.

You can do this by adding the number **(N)** to the search query:

NEAR/N There may be a maximum of N words between the search terms in the search result. The order of the words is not important.

E.g. *Childcare NEAR/3 Deventer*.

ADJ/N A maximum of N words may appear between the search terms in the search result, but in the exact order as indicated.

E.g. *Childcare ADJ/3 Deventer*.

In databases and search engines you sometimes have to use different words or codes. To be sure which one to use: use the HELP function.

Tip: In Google you have to use the operator "AROUND". E.g. childcare AROUND(3) Deventer.

Truncation

If you want to find word variants or both singular and plural, you can replace the end of a keyword with a character. This is called truncating. The characters you use are called wildcard or joker.

The effect of truncating depends on the place in the word you truncate.

Example:

With Children's Rights* you will find far fewer publications than with children*, but they are more specific. Because if your subject is 'children's law', you are probably not interested in articles about children's books or children's clothing.

To truncate, you usually use an asterisk (*) or a question mark (?), but this may vary from one database to another. Sometimes the number of characters that are replaced by one character also differs. You can always find more information about this at "HELP" of the database in question.

Wildcards

Not only at the end, but also within keywords you can replace one or more letters with a character. These characters are called wildcards. Usually this is a question mark (?), but this can vary from one database to another. It can also vary per database how many characters are replaced by one wildcard or joker. Look in the help file of the database concerned.

Masking can be useful if you have doubts about the spelling of a word or if the spelling can vary.

Example:

Globali?ation = Globalisation or Globalization

Keywords

Library catalogues and databases often contain keywords.

The advantage of searching with keywords is that you know that a publication is truly about that subject.

Many catalogues and databases have a keyword list or index in which you can find all the keywords used.

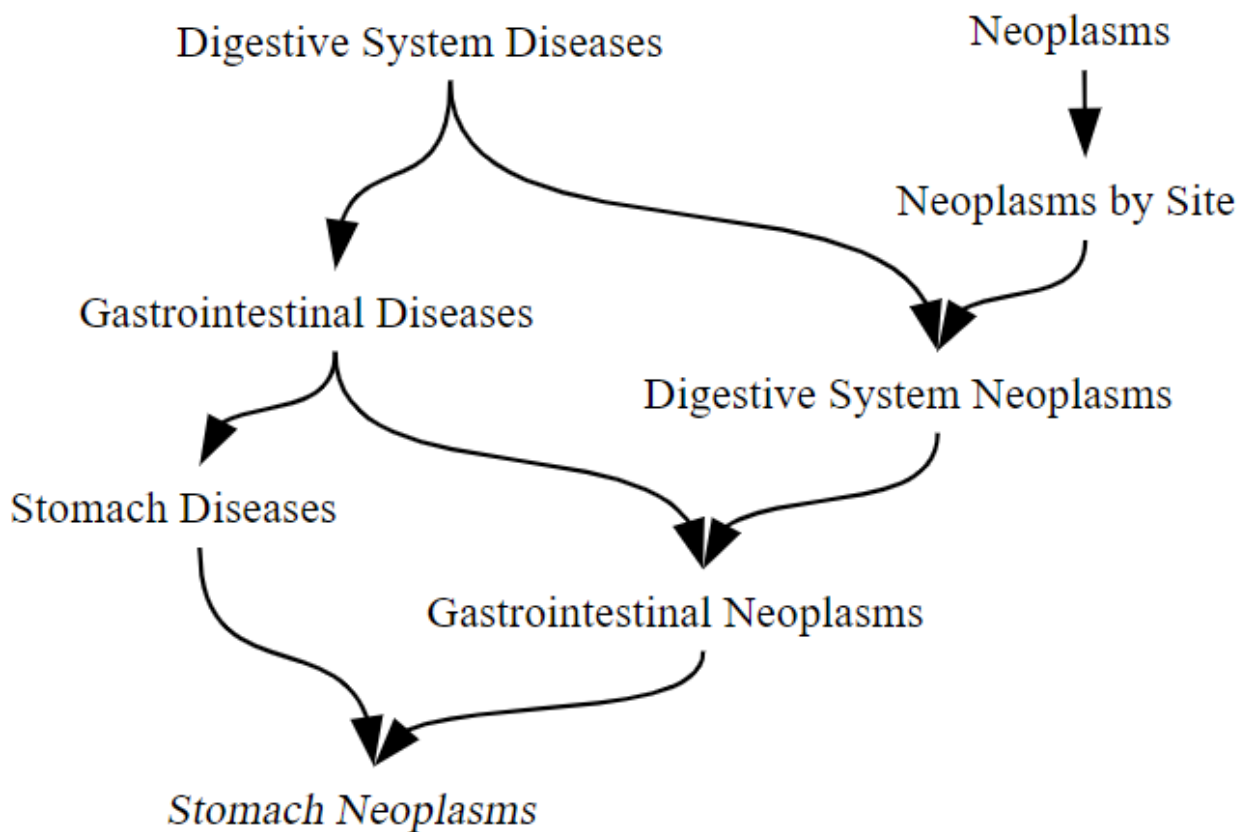
Thesauri

A thesaurus presents keywords in their mutual relationship. You will also find variants of the keywords.

When you look up a term, you also see what the broader term (BT), narrower term (NT), related term (RT) or preferred term (UF=Used For) is. This is very useful if you don't know exactly which word to search for yet.

In this example from the Medical Subject Headings (MeSH) you see for the terms "Digestive System Diseases" and "Neoplasm" variants, broader and narrower terms etc.

Medical Subject Headings (MeSH)



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Search methods

If you start a search, you begin with typing a few words to see if you can quickly find interesting information. We call this search method *quick & dirty*. Often this method takes you a few steps further, but there are other ways to search for information.

In this chapter we will present some of these search methods.

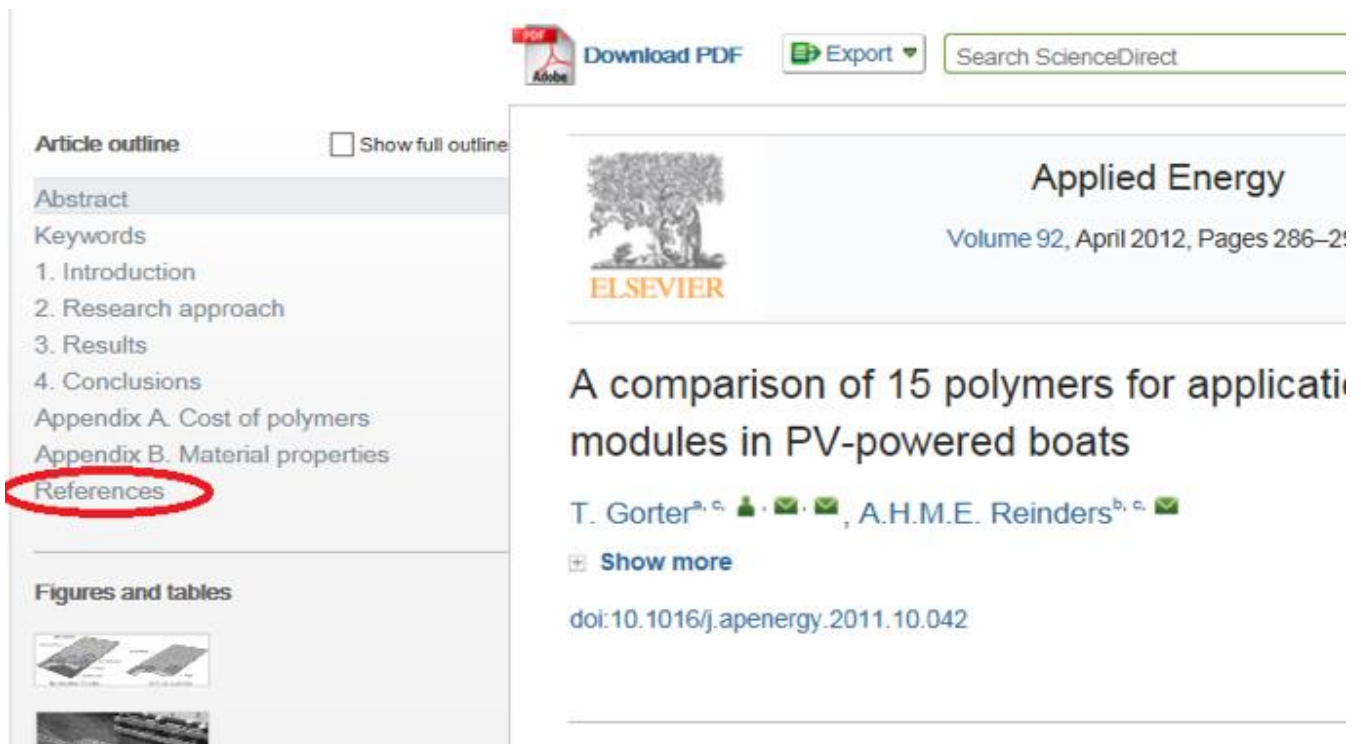
Snowball method

In many publications, both online and on paper, you will find a literature list / bibliography at the end. In this list, the author gives an overview of the used literature or makes recommendations for more interesting literature on the subject. In this way you can track down other useful books or articles.

If you are using an article from an online database, you can often click directly to the publication referred to via a *literature reference*.

With this method you always look **back in time**, because the literature you find in the bibliography of a publication is always older than the publication itself.

Example: In this article from Science Direct on Polymers you will find references to the literature used by the author under *References*.



The screenshot shows a ScienceDirect article page. At the top, there are buttons for 'Download PDF', 'Export', and a search bar labeled 'Search ScienceDirect'. The article is from 'Applied Energy', Volume 92, April 2012, Pages 286–291. The title is 'A comparison of 15 polymers for application in PV-powered boats'. The authors are T. Gorter^{a, c} and A.H.M.E. Reinders^{b, c}. The article outline on the left includes: Abstract, Keywords, 1. Introduction, 2. Research approach, 3. Results, 4. Conclusions, Appendix A. Cost of polymers, Appendix B. Material properties, and References (circled in red). Below the outline is a section for 'Figures and tables' with some image thumbnails.

Citation search

In citation indexes you can look up in which articles a certain publication is quoted. This method allows you **to look ahead in time**: the literature that refers to an article is always more recent than the article itself.


So this is a good way to look up recent relevant literature. In many online databases you can directly click through to an overview of 'quoted by' references in a publication.

Example: Google Scholar

Does **innovativeness** drive environmentally conscious **consumer** behavior?

[BG Englis, DM Phillips](#) - Psychology & Marketing, 2013 - Wiley Online Library

... Taken together, it is expected that **global innovativeness** will mediate the relationship between a **consumer's** pro-environment attitudes and behaviors ... This is because early on, it is the most innovative **consumers** who adopt the new product while others lag behind ...

☆  **Cited by 53** [Related articles](#) [All 2 versions](#) [Web of Science: 21](#) 

Expand and limit search terms

You start by typing one search term. Chances are that you get too many results of which a lot are irrelevant. By adding a second search term you are already searching more specifically. After all, both one and the other search term must appear in the found websites or documents. Now you have fewer results but more specific. If you are not yet satisfied with your results, you can add another search term. This will keep on going until you have a useful list of results that are really about your topic.

Example:

In the following example, a search term is continuously added. You continue combining until the result consists of enough relevant hits.

In PubMed we start with the search term *children*. To this we added the search term *sleep*, and finally the search term *bed*. As you can see the number of hits decreases.

Step 1: Search with *one* search term: *children*

Builder

All Fields	children	x	Show index list
AND	All Fields		Show index list

Search or [Add to history](#)

Results: 1 to 20 of **2015125**

Step 2: Add a second search term to specify: *sleep*

(children) AND sleep

[Edit](#)

Builder

All Fields	children	x	Show index list
AND	All Fields	sleep	Show index list
AND	All Fields		Show index list

Search or [Add to history](#)

Results: 1 to 20 of **20395**

Step 3: Add a third search term to make your search even more specific: *bed*

((children) AND sleep) AND bed

[Edit](#) [Clear](#)

Builder

	All Fields	children	⊖	Show index list
AND	All Fields	sleep	⊖	Show index list
AND	All Fields	bed	⊖	Show index list
AND	All Fields		⊖ ⊕	Show index list

or [Add to history](#)

Results: 1 to 20 of **652**

Limiting search terms

This search method works exactly the other way around. You start with a large number of search terms that in your opinion should all appear in your search results. You put them all one after the other in the search window. You may not get enough results because there are too few websites and/or documents that contain all the terms. In that case you remove a search term. You look at the results. If you still don't get enough results, you remove another search term. You do this until you are satisfied with your results.

Improving search results

Too few search results

If the result of your search is too small, there may be several reasons.

Have you chosen the right source?

- Possibly use another database

Is it because of your search?

- Check your search query and adjust it if necessary
- Formulate your question differently
- See if all components are needed

It could also be that there is little or no information on your subject available and you need to choose a different subject.

- Use other or less specific search terms
- Check your search terms, for example, have you translated your terms correctly?
- In a subject-specific database, you need to use more specific search terms than in a general database.
- Attention! By using less specific search terms, the amount of hits will be higher, but the number of relevant hits can be lower.
- Indicate fewer limits
 - Articles from the last two years may be the most suitable, but perhaps a lot has been published on your subject in the years before that.

Too many search results

If you find too much irrelevant information, there are several possibilities to adjust your search:

- Use more precise search terms (see step 2)
- Select a specific search input (see step 4), e.g. search by Author
- Search with exact word combinations (see step 4)
- Limiting (see step 4) on certain types of publication or on publication date
- Add a search term

Because of a limitation the amount of hits will be lower, but the share of relevant hits is higher. For example, you can see which author often appears in your first search results. This is probably an important author within the field in question. Use the author name in the Author field to further search for publications.