Take a break, take a walk!

**BOTANICAL GARDENS**

Have you ever been to the “Botanical Gardens”? This pristine forest is open to the public. As it remains untouched forest, it is designated as a Natural Monument “AOBAYAMA”. It’s too spacious to feel crowded by other people’s presence, and gives you an optimum time for thinking reflectively in the garden. Tohoku University's ID Holders are admitted free! Open Vernal Equinox Day to November 30. CLOSED on MONDAY.

http://www.biology.tohoku.ac.jp/garden/

**Tohoku University Museum:** Museum of Natural History

The round building at the top of Aobayama-Hill is the “Tohoku University Museum (Museum of Natural History)”. There are exhibitions of ammonites and dinosaur fossils, and mineral ore samples. They also hold collections of “Tibetan Buddhism”, “Japanese archeology”, “history of Metals” and “herbarium specimens”.

Don't you want to think about “Evolution of Earth and Life” outside of your laboratory?

Tohoku University’s ID Holders are admitted free! CLOSED on MONDAY.

http://www.museum.tohoku.ac.jp/index.html
Part II  Information Research in Natural Science
–E-Journal and Database
1 Flow of Research Activity and Information Research

In natural science study, it’s especially important to use the results of research in related fields. The results of past and present research is used in every research step.

It’s essential to search for such material from reliable resources. For example, academic journals which have high standards in each research field are one such resource.

In the case of databases, choose one that is produced by an academic institution or society. To get the information which you need, knowledge of research activity flow, the kind of information research, and the features of each resource are all necessary.
As the figure on the previous page shows, the cycle of research activity starts with referring to previous research, then stacking the results in databases, so that other researchers can refer to them for new research.

(1) Researching the Past
   To choose the theme, let’s begin by browsing current journals or reviews.
   When you have chosen a theme, it’s necessary to search for results about what has been written on the topic in the past, and gather as much information as possible.

(2) Researching the Present
   By checking current journals, or searching databases, you can confirm the situation of the topic in current research. It’s necessary to research current activity, because new papers are produced every day!

(3) Researching for Related Information
   When you want to make sure of the facts, you should confirm them with related papers. You will find these in some databases, or in reference lists.
   For example, “Web of Science” has a function that allows you to reach related papers using citing/cited information.

(4) Researching for Facts
   You may need factual data, for instance, calculated/analyzed data about the nature of materials. You will find this in the recent database. However there is traditional printed matter, too.
   Research results are published as journal papers, then database vendors or publishers gather them and put them into their databases. Recently, as soon as new research is published in printed form, the electronic version becomes available.
# 2 Tohoku University "Online Catalog (OPAC)"

<table>
<thead>
<tr>
<th>Items</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creator</td>
<td>Tohoku University Library</td>
</tr>
</tbody>
</table>
| Coverage     | - Books 1.7 million (approximately), Serials 60,000 titles (approximately) in Tohoku University (all campuses)  
- Books and Serials held in other domestic university libraries (by checking box) |
| URL          | http://www.library.tohoku.ac.jp/opac/expert-query-e                                                                                         |
| How to Use   | Available from any place                                                                                                                   |
| more         | Using “MyLibrary”, you will find links to other services (university members only). E-journals linked from OPAC are available from computers inside the campus. |

**Top page of advanced search**

![Top page of advanced search](image)

**Basic Search**

![Basic Search](image)
2.1 How to Input Keywords

2.1.1 Search by Bibliography or Key Words

- **<bibliographies>**
  Input title, author, etc. as it is.
  e.g. “the chrysanthemum and the sword”

- **<key words>**
  Input keywords.
  e.g. “chrysanthemum sword”
  This is Boolean “AND” search.
  “electronic circuit” is better than the compound noun
  “electroniccircuit” for producing a larger number of results.

2.1.2 Chinese letters, Em-/En-size, etc.

- If you do not know key words in Kanji (Chinese letters), input them in Hiragana, Katakana (Japanese letters) or Romaji (Roman letters).
  e.g. If you do not know “漱石”, input “そうせき” or “ソウセキ” or “soseki”.

- Distinction of Em-size or En-size is not necessary.
  e.g. “P l a t o” “Plato”
  “C D － R O M” “CD-ROM”

- The distinction of capital letters or small letters is not necessary, either.
  e.g. “INFORMATION” “Information” “information”

2.1.3 Truncation

Use * (asterisk) for Right Hand Truncation.
  e.g. “jour*” “app*” “phys*”
  →You will find “Journal of applied physics” and so on.
  “sociolo*”
  →You will find “sociology” “sociologist” “sociological” and so on.
2.1.4 Others

- Spelling signs (e.g. an umlaut sign “¨”) and accent signs (e.g. “´” or “¨”) are not necessary.
  e.g. “wörterbuch” → “worterbuch”

- Papers are not searchable.
The Online Catalog is a tool to find books and journals. To find a paper, you need to know which journal contains it.
### 2.1.5 Logical Operation ("Advanced Search")

(1) **AND Search**

Retrieval of the records that include both "man" and "life".

(2) **OR Search**

Retrieval of the records that include either "man" or "life".

(3) **NOT Search**

Retrieval of the records that include "man" negating "life".

If you get too many results:
- Try AND Search

If you do not find the material you want:
- Input other words with space
- Try Right Hand Truncation

If you want to get many results:
- Try OR Search
2.2 Detailed Information on Books

- **Items and contained information**

<table>
<thead>
<tr>
<th>Items</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vol.</td>
<td>volume (ex. vol.1, vol.2), part(ex. the first part, the second part)</td>
</tr>
<tr>
<td>Location</td>
<td>where the material is located</td>
</tr>
<tr>
<td>Call No.</td>
<td>the number labeled on the back cover</td>
</tr>
<tr>
<td>Barcode No.</td>
<td>ID number of the book</td>
</tr>
<tr>
<td>Condition</td>
<td>the status of “on loan” or “missing”</td>
</tr>
</tbody>
</table>

- Make a note of the “Location” and “Call No.” to find the book you want. If you need to ask a library staff, Barcode Number (ID number) is helpful.
2.3 Detailed Information on Journals

2.3.1 Display of Locations

e.g. “American journal of botany”
- Items and information contained

<table>
<thead>
<tr>
<th>Items</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volumes</td>
<td>- which volumes are held</td>
</tr>
<tr>
<td></td>
<td>e.g. “1,21·41”</td>
</tr>
<tr>
<td></td>
<td>means “vol.1 and vol.21·41 are held”</td>
</tr>
<tr>
<td></td>
<td>e.g. “1·20,21(1·4,6·12),22·41+”</td>
</tr>
<tr>
<td></td>
<td>() are issues. In this case, 21(5) is not held.</td>
</tr>
<tr>
<td></td>
<td>“+” at the end means acquisition is continued.</td>
</tr>
<tr>
<td></td>
<td>- Volumes and issues is a link to the detailed information on where the bindings are.</td>
</tr>
<tr>
<td></td>
<td>- “All volumes” is a link to the detailed information on all of the bindings in our university.</td>
</tr>
<tr>
<td>Year</td>
<td>The range of years of volumes held</td>
</tr>
<tr>
<td>Location</td>
<td>Where the material is located. Detailed information is available for each page</td>
</tr>
<tr>
<td>Current issues</td>
<td>- Where the non-bindings are located</td>
</tr>
<tr>
<td></td>
<td>This is the link to the detailed information on where the non-bindings are.</td>
</tr>
<tr>
<td>Back Number</td>
<td>Where the bindings are.</td>
</tr>
</tbody>
</table>
2.3.2 Detailed Location of Bindings

You can check:
- Whether the volume you want is held or not
- Where it is located
- Its status (sometimes “on loan” or “missing”)

2.3.3 Detailed Location of Non-bindings

You can confirm:
- The volume is not missing or “On wanting (not delivered issue)"
- The volume is not “On Bind (being rebound)"
2.4 To Search Collections of Other Universities

If you check both “Inside the Univ.” and “Outside the Univ.”, you search both Tohoku University Library and other university libraries. Other universities are searched only when you do not find the material in Tohoku University Library.

- If you want to focus on other universities, remove the check of “Inside the Univ.”.
- There are some limitations on the “Outside the Univ.” search. For example, you cannot narrow the range of years.
- There are some differences between the search results for “Inside the Univ.” and that for “Outside the Univ.”.

**e.g.** the search result for “Tokyo earthquake report”

- Results: “Inside the Univ.”
Results: “Outside the Univ.”

If you click the title of an item in the search result for “Outside the Univ.”, universities that hold the item are displayed in Japanese (sorry!).
3 E-journal

3.1 Database or E-journal?

- I know the Journal title which includes the article I want to read.
- I want to browse the specific journal.

- I would like to get a lot of articles about specific topics or authors.
- I need citation information.
- I also need factual data.
3.2 Operation

We offer an E-journal list (approximately 8,000 e-journals) on the library website. Choose the journal title that you would like to read, and click it. Academic articles can be downloaded or printed out for research use. There are strict rules governing the use of E-journals. If someone breaks these rules, the publisher will stop subscription all over Tohoku University. Users are prohibited from downloading a large number of papers in a short time, for instance.

**e.g.** Search for the following article. “Aimo Winkelmann, “Dynamical simulations of zone axis electron channeling patterns...” Ultramicroscopy, vol.98, no.1, 2003, p.1-7”

1) Click “E-journal, E-book list” of Library website
2) Electronic Journal List of Tohoku University

You can browse electronic journals by title.

You can search electronic journals by journal title or ISSN.

You can browse electronic journals by subject.

*Notice:* Electronic Journal List system is being improved. Screenshots shown here may differ from the latest release.
3) Enter the journal title or select the journal from title list
4) Reviewing your search results

The Fair Use Guidelines for Electronic Journals

1. Only members of Tohoku University accessing from a Tohoku University IP address are authorized to access electronic journals.
2. Electronic journal data may only be downloaded, printed out, or stored for personal use.
3. Large numbers of articles from a single issue must not be downloaded either manually or automatically.
4. Electronic journal data must not be transferred to third parties and altered.
5. Use of software to automatically download large numbers of articles may be regarded as a contract violation regardless of the intention of the user.
5) Select volume and issue

6) Click “PDF” to see full-text.
Part II  Information Research in Natural Science—E-journal and Database

7) PDF format full-text

8) HTML format full-text
3.2.1 Search Articles at Publisher’s Websites

1) For example, let’s search for articles using “ScienceDirect”.

2) You can search by title, keyword, author and so on.
3.2.2 Contents Alert

1) Many online journal websites offer a “Contents Alert” function.

2) Set an alert according to your needs.