DOCUMENT RESUME

ED 462 303 SE 065 696

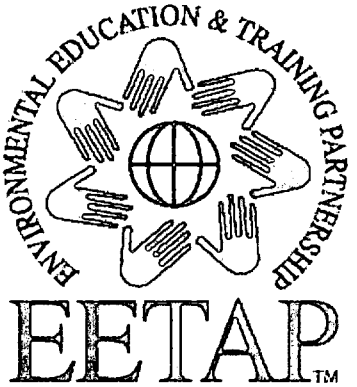
AUTHOR Heimlich, Joe E.
TITLE Finding Resources on the Internet: A Trainer's Module for Environmental Education.
INSTITUTION North American Association for Environmental Education, Troy, OH.; Ohio State Univ., Columbus. Cooperative Extension Service.
SPONS AGENCY Environmental Protection Agency, Washington, DC. Office of Environmental Education.
PUB DATE 1999-00-00
NOTE 30p.; Developed by EETAP (Environmental Education and Training Partnership) Resource Library (The Ohio State University) and EE-Link.
CONTRACT NT-902897-01-4
AVAILABLE FROM For full text: http://www.ag.ohio-state.edu/~eetap/pdf/trainers.pdf.
PUB TYPE Guides - Classroom - Teacher (052)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Elementary Secondary Education; *Environmental Education; Higher Education; *Internet; *Search Strategies; World Wide Web
IDENTIFIERS *Training Materials

ABSTRACT

This document presents a training module for finding environmental education resources on the Internet. The module includes information on online searching and searching strategies. Also provided are training resources, overheads, databases, online information providers, and other valuable resources. (YDS)

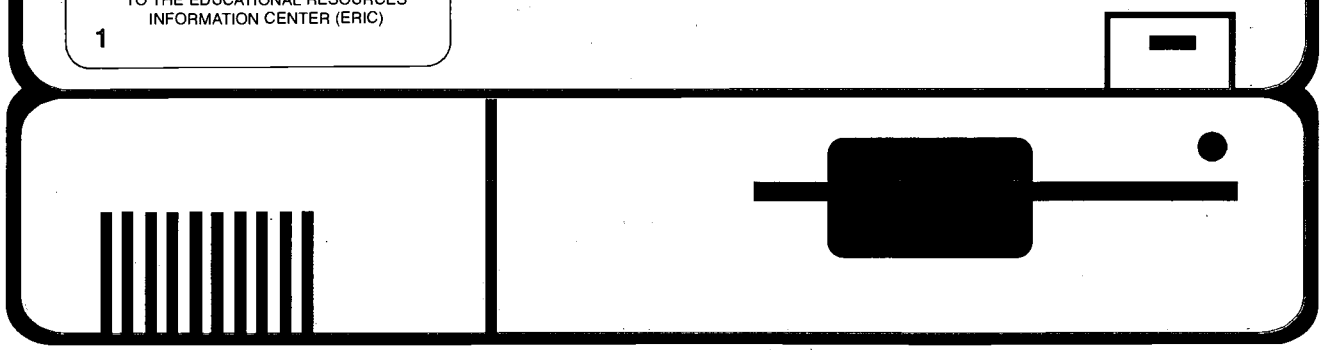
Finding Resources on the Internet

A Trainer's Module for Environmental Education



Environmental Education and Training Partnership

The EETAP Resource Library
and
EE-Link



Developed by:
Joe E. Heimlich, Ph.D.
EETAP Resource Library, The Ohio State University

Paul Nowak, Jr., Project Manager
Katy Wang, Site Editor
EE-Link
North American Association for Environmental Education

For additional information please contact:
EETAP Resource Library
Ohio State University Extension, Community Development
School of Natural Resources
700 Ackerman Rd, Suite 235
Columbus, OH 43202-1578
phone: 614-292-6926
fax: 614-292-7341
e-mail: heimlich.1@osu.edu
web: www-comdev.ag.ohio-state.edu/eetap/index.html

please visit EE-Link's Web site at:
http://eelink.net

A project of the Environmental Education and Training Partnership, funded by the U.S. Environmental Protection Agency and managed by the North American Association for Environmental Education.

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Section I: Overview

Environmental Educators are increasingly going to the web (World Wide Web or Internet) in order to find resources and information for their programs. In many educational settings, students have on-line access and supplement their work with information and materials retrieved from the web. The use of this technology, however, is not without its costs.

Many educators find they do not have the time necessary for "surfing" the web to find what they need. Students often discover resources or information that is not exactly what the educator expected. There is a need for educators to know about the web— not from the perspective of the technology of the web, but from the view of understanding how the web is organized and how to move through it in the most effective and efficient ways possible.

Environmental issues are complex and draw in considerations of economics, politics, sciences, social studies, geography, history, culture and the humanities. Because of this complexity, students and communities studying environmental issues need access to a wide array of information. The web, and the myriad resources that can be there, is a powerful tool for getting diverse information quickly. *If* the searcher knows how to find the information they need.

This document is a training guide for conducting workshops or sessions with educators on searching the web and searching databases. This workshop is based on a training program that was developed through the Environmental Education and Training Partnership (EETAP) , a five year project funded by the U.S. Environmental Protection Agency, Office of Environmental Education and managed by the North American Association for Environmental Education. The workshop was designed and piloted by EE-Link (University of Michigan) and the EETAP Resource Library (The Ohio State University). WestEd provided the technological support for these pilots.

The following is a general guideline for conducting a workshop for educators to help them learn how to search the web and then, in turn, be better equipped for helping their students find the "right" resources.

For additional information on environmental education and resources, the Excellence in Environmental Education Project out of Northern Illinois University has developed guidelines for excellence in materials and learning. For information, contact NAAEE, Publications and Membership, P.O. Box 400, Troy, Ohio 45373 or online, type <http://eelink.net/~npeee/html/learner_guidelines.html>

Section II: Training Module

Introductory Activity

Prepare a set of Activity Cards. There should be one set of twenty-five cards for every group of 5-10 participants in your training. Have the following labels written one per card:

Red	Orange	Pine	Mope	Tail
Yellow	Peach	Needle	Laugh	Paws
Blue	Apple	Trunk	Sigh	Spine
Purple	Banana	Root	Whine	Fur
Green	Plum	Berry	Glare	Bark

Divide the group into smaller groups of 5 -10 individuals. Distribute a set of Activity Cards to each group and give the assignment: As a team, organize these cards. Note that there is no one way to organize the cards. Their challenge is to develop their own system of organizing the cards as quickly as possible.

Give the group about 5 minutes to complete the task. Give each group blank index cards and have them label each of the categories they developed. Then ask for the groups' answers to the following questions (or make up more if you want to!):

- How many cards start with the letter "P"?
- How many color cards are there?
- Which card is the 10^{th} in alphabetical order?
- How many categories do you have? How many cards in each?

Discussion

How is this activity similar to the internet or the world wide web?

How is the internet similar to a library?

How is the internet different from a library?

What is the "WOW" factor in searching the web?

- The search engines crawl and find thousands or millions of sites with one or more of the search words. The "wow" is when you search and find 2,342,590 sites that match your search!

What is the problem with the "WOW" in searching the web?

- Often, we're after a specific site, or piece of information and we don't want to have to look through scores of sites in order to find the one site we're after.

During the workshop you'll explain two types of on-line searches for sites, and then provide some strategies for searching clearinghouses or databases.

Some Information for the teacher:

A few definitions:

- a *network* is a connection of two or more computers.

Small networks are usually linked by telephone lines. Larger networks can be connected by telephone lines, fiber optics, radio, or satellite.

- *The Internet* is a global network of networks that exchange information through a common communication standard.

The Internet is a connection of a LOT of individual computers, each one set up with its own logical organization. Just as each group organized their cards slightly differently, so too do people organize information in different ways. Could anyone else find everything you use to do a program in *your* files? Could you find what you need in someone *else's* files?

Because networks are set up by humans, there are other challenges in trying to find information. There may be typos in the words being searched; there may be tense or plural issues; there may be different ways of naming something (note historical changes in words such as Environmental Education: Conservation Education, Nature Study, Outdoor Study, Outdoor Education, Environmental Management Education, and other words that may be used to describe EE).

On-line Searching

There are two broad types of searches, whether searching on-line for sites, or within a site or database for specific information: creative (or fluid) and focused (or directed). There is an overhead of the chart in the Resources Section of this guide.

Creative	and	*Focused*
• go wherever the search leads you • find out what's "out there"		• go as quickly as possible to the "right" spot • to find specific information/resources

From this point until working on the computer, refer to the parallels between on-line searching and database searching.

Searching for Information

If someone is in need of a plumber, where do they look to find one? *Yellow pages*
If someone is planning to do some plumbing repair, where might they look to find information on how to do the repair? *Library or bookstore for books on plumbing; Talk to a plumber or someone who knows how to do the repair.*

People seek information all the time. Libraries, phone books, business directories, conversation with knowledgeable people, radio, television, and more are common sources of information. The Internet and the thousands of databases on the 'net are also sources of information.

The Internet can be viewed as a vast library — lots of good information, some questionable information, fiction, biographies, travel, cooking...it's all there. But like a library, finding the right resources (or even the right section) can be a challenge. Imagine going into a library and having to look at every book on every shelf to find the one that is needed. It's a daunting task! But there are ways of finding the section and even the exact shelf location of that one book without having to randomly "browse." Creative searching is analogous to doing shelf scanning— looking at shelves of books in a section to see the types of books that are available. Maybe picking up one or two now and then and skimming them more closely. And if there's lots of time, even reading parts of different books. A focused search is like using the card catalogue (even though it's probably on computer) in which the few books that are exactly what are wanted are identified and then retrieved.

Doing a Creative Search

The purpose of a creative search is to find out what's "out there" in the vast connections of the Internet. The concept of "surfing the 'net" is part of creative searching. The creative search uses

the "wow" factor that was built into net searches. "Wow" is the discovery that there are thousands or even millions of "hits"

Some Definitions:

HTML	Hypertext Markup Language
URL	Universal Resource Locator
HTTP	Hypertext Transfer Protocol
Subject indexes	Hypertext documents with hierarchal menus of links, organized by subject
Web Crawlers	Automatically follow hyperlinks (may feed a search engine)
Database Interfaces	Query-based sites
Search Engines	Thematic guides: Databases of WEB documents (use crawlers)
Boolean Searches	Searches in which terms are joined together with connectors (picture a Venn diagram). Most common connectors are and/or/not
Hit	A site that matches one or more of the words you searched

* There is an overhead of this chart in the resources section of this guide

Move to the computer. Have the participants log onto the WEB. Type in the address:

http://www.eelink.net/eeadmin/

Your screen should look like this:

Effective Internet Search Strategies:

Find What You Want or Need on the World Wide Web

Projects WET, WILD, Learning Tree and Del Rio

Note: This document will remain at this URL so if you write down one thing at this session, it should be:
http://eelink.net/eeadmin/

Presenters:

Joe Heimlich, Ohio State University
<heimlich@agvax2.ag.ohio-state.edu>

Katy Wang, Site Editor, EE Link Project
<wangkn@eelink.net>

I. Introductions

Handout #1: EE-Link Handout
Handout #2: Search Strategies

II. A Networked Perspective: Organizing Information

Activity #1: Sifting the Mix

III. A Couple of Searches: Search Engine Self Education

Online Activity #1 Click here (Dejanews) and do a search for "environmental education wetlands" -- tell us what you find.
Search Again: Do the same "environmental education wetlands" search but this time do it at: Excite.com

IV. Internet Search Approaches: The Internet as an interactive,

experiential environment.

V. Some Better Tools ...

Links:

EE-Link Search Info for EE- Specific Users - Some EE specific databases and EE synonyms.

Internet Background Information about searching and much more -- "Educate Yourself" about the Internet.

A Guide to the Search Engines - Find out what each search engine does, and then choose one that fits your needs.

Searching a Database: Strategies for Searching

The key to finding information is in knowing how to ask the right questions. In your workshop you can use the **Thesaurus of Environmental Education Terms** from EETAP (on the Web at EE-Link <http://eelink.net/easysearch.html> as a starting point for using the right language and descriptors. Most systems use titles, authors, publishers, dates, and key words (descriptors) for conducting resource searches. Title, author and publisher searches are usually straightforward (although some databases use the sequence of names differently e.g. last name, first name; or first name last name; or last name, first initial). Word searches become more complex.

Some Hints...

- Use both singular and plural forms of words
- Use historical terms (e.g. outdoor education; conservation education; and environmental education)
- Use a thesaurus for related terms
- Think both teaching and learning (teaching activities AND learning activities)
- Avoid limiting a search too quickly

Some general guidelines for searches hold constant. Most databases use a conjunctive system. This means you can mix the descriptors or search terms to get more detailed results. Some of the major conjunctives are:

"and"	to combine two terms
"with"	to get two words side by side
"or"	seeks both terms, but not necessarily in the same document retrieval
"not"	eliminates duplicates in the search results

Search Strategies

There are several ways of developing a search. *In your workshop, if you are on-line, these searches can be demonstrated using the words on the example overheads. If you do not have on-line capabilities in your training, use the example overheads to show what would appear on the terminal screen. It might be helpful to prepare your own searches related to topics of relevance to the participants in the workshop. You might also want to have overheads of the home pages of different databases.*

There is no "right way" to do a search! In fact, most librarians use combinations of the following patterns that they develop through experience. Librarians and others who are expert in finding

materials often have created short-cuts or ways of searching that work for them because of their experience, but that might baffle those of us who do not routinely do this type of information retrieval. The following patterns are based on studies of librarians doing searches and then trying to simplify the processes they use. These are meant as guidelines to get started— most people will adapt the patterns to their own way of doing work and this is strongly encouraged. These patterns are presented to help educators understand how to construct searches and to get started/not get stuck and saying "there's nothing out there!"

- Linear Pattern

The most basic search strategy is a linear search which uses several different words and then cross checks each word with the others. (Overheads: "Linear Pattern" and "Linear Pattern Search"). For most people, a linear search is what they automatically use when searching a database. The use of a thesaurus is very important in a linear search to ensure the search covers the topic fully.

As an example of a linear search, if you are using three search terms, the search would look like this:

line 1	enter word one
line 2	enter word two
line 3	enter word three
line 4	enter "#1 and #2"
line 5	enter "#1 and #3"
line 6	enter "#2 and #3"
line 7	enter "#1 and #2 and #3"

The results are a cumulative narrowing. With a linear pattern, it is good to try several different searches and combinations to be sure that the search is broad enough, as narrowing the search too quickly can mean omission of potentially valuable documents.

- Circular Pattern

When searching, especially on line, it may not be prudent or possible to have a thesaurus handy. The circular pattern is a tool for discovering the types of words used in the database to describe the subject being sought. The search is done by using a broad term (such as environmental education). The searcher then looks at the first few "hits" and notes related terms or descriptors used. Next, a term is entered that is more specific to the topic (such as biodiversity). The searcher looks at a few entries under these hits and notes related terms or descriptors. Then, the process is continued using either other key search words identified before the search, or with the words found in the descriptors of the hits. This continues until the key words and descriptors are fairly consistent. At this point, the searcher knows they have found all the words they'll probably need to use to find the specific materials they desire.

(Overheads: "Circular Pattern" and "Circular Pattern Search")

- Diamond Pattern

When a searcher is fairly conversant in the words that would be used to find their resources, they may use a diamond pattern search strategy. In this approach, a broad term is used and then narrowed by joining it with a term that the searcher knows will have fewer hits. After looking at the hits, the searcher then widens the search again using the same or a different broad term and narrowing it with another word. The searcher looks again at the hits. This pattern continues until the records returned appear to be fairly consistent. These are the most probable records the searcher wants.

(Overheads: "Diamond Pattern" and "Diamond Pattern Search")

- Spiral Pattern

A blending of the linear pattern search with the circular pattern search leads to the spiral pattern search. A broad term is used and then narrowed by another broad term. This is turn is narrowed by another broad term. At each junction, the searcher checks the hits to see the types of records being returned and the terms used as key or descriptor words. This pattern continues until only a few records are returned as hits. These are examined and then the process repeated using different sets of words.

(Overheads: "Spiral Pattern" and "Spiral Pattern Search")

Applying the Concepts: Practice

Have the participants (individually or in teams) use the thesaurus and develop and then try some searches for themselves.

- Create a number of teams that corresponds to the number of on-line terminals available.
- Have each team identify a specific topic of interest.
- Using the Thesaurus of EE Terms <http://eelink.net/easysearch.html>, have each team create a search strategy.
- Apply the strategy and find the resources.
- Have teams try changing one term to see what happens.
- Change one term from singular to plural or plural to singular and see what happens.
- Use completely different terms (but parallel synonyms) and do the search again and see if the search provides different resources.

Section III: Training Resources

Databases:

EETAP Resource Library's Database Search Page (NAAEE/GreenCom, ERIC/CSMEE, ENC)
http://www-comdev.ag.ohio-state.edu/eetap/findingresources.htm

ERIC Clearinghouse for Science, Mathematics and Environmental Education at:
http://www.ericse.org/index.html

Eisenhower National Clearinghouse
http://www.enc.org/rf/index.htm

North American Association for Environmental Education/GreenCom Database at:
http://eelink.net/greencomresourcelibrary.html

The Pembina Institute at:
http://www.pembina.org

On-Line Information Providers:

The following information providers have self-identified as being Environmental Education Information Providers. For a more detailed listing of these providers check http://www-comdev.ag.ohio-state.edu/eetap/pdf/infoprodir.pdf (information providers list) or contact the EETAP Resource Library at http://www-comdev.ag.ohio-state.edu/eetap/publications/htm

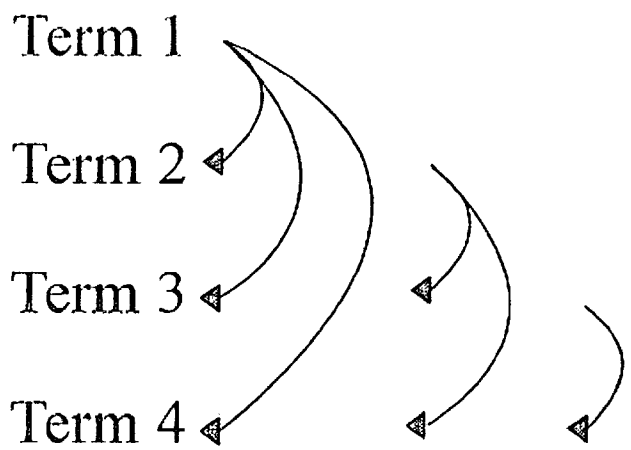
Center for Environmental Education **40 Avon St, Keene NH 03431**
Center for Great Lakes Environmental Education **www.greatlakesed.org** **P.O. Box 56, Buffalo NY 14205-0056** **716-858-7713 fax 716-858-6370**
EE-Link - Environmental Education on the Internet **http://eelink.net**
Eisenhower National Clearinghouse **www.enc.org** **1929 Kenny Rd., Columbus, OH 43210**
Environmental Media Corporation **www.envmedia.com** **P.O. Box 99, Beaufort SC 29901** **1-800-ENV-EDUC (1-800-368-3382)**

ERIC Clearinghouse for Science, Mathematics and Environmental Education 1929 Kenny Rd, Columbus, OH 43210-1080 www.ericse.org
GLOBE www.globe.gov 744 Jackson Pl NW, Washington, DC 20503 202-395-7600 fax: 202-395-7611
Institute for Global Environmental Strategies www. Strategies.org 2111 Wilson Blvd Ste 700, Arlington VA 22201 703-875-8634
North American Association for Environmental Education www.naaee.org 1255 23rd St NW, Washington DC 20037 202-884-8912 fax: 202-884-8701
National Environmental Directory Project Missoula, MT 59807 406-721-0440
National Institute for the Environment www.cnie.org 1725 K Street NW Ste 212, Washington DC, 20006-1401 202-530-5810
Second Nature www.2nature.org 44 Bromfield St, Boston MA 02108 617-292-0150
World Resources Institute www.wri.org 1709 New York Ave NW, Washington DC 20006 202-638-6300

Other Valuable Resources:
Excellence In Environmental Education Publications
Evaluating the Content of Web sites
<http://www-ag.ohio-state.edu/eetap/pdf/evalwebsites.pdf>

Search Strategy #1

Linear Pattern



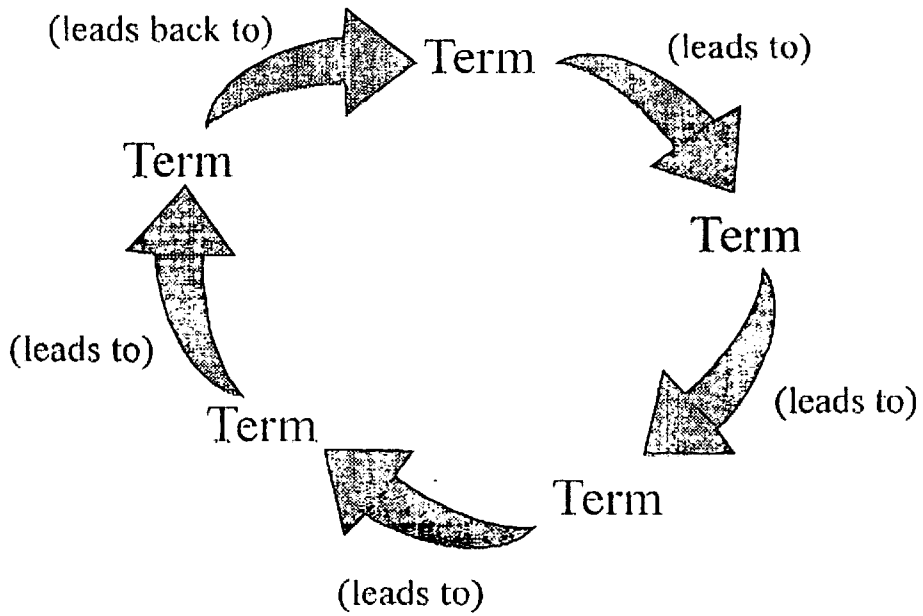
Linear Pattern Search

ERIC 1992 - 3/96

No	Records	Search Request
#1	19842	CURRICULUM
#2	4002	ENVIRONMENTAL
#3	106194	EDUCATION
#4	2184	ENVIRONMENTAL EDUCATION
#5	19516	ACTIVITIES
#6	32	BIODIVERSITY
#7	543	#1 and #4
#8	5055	#1 and #5
#9	5	#1 and #6
#10	756	#4 and #5
#11	24	#4 and #6
#12	11	#5 and #6

Search Strategy #2

Circular Pattern



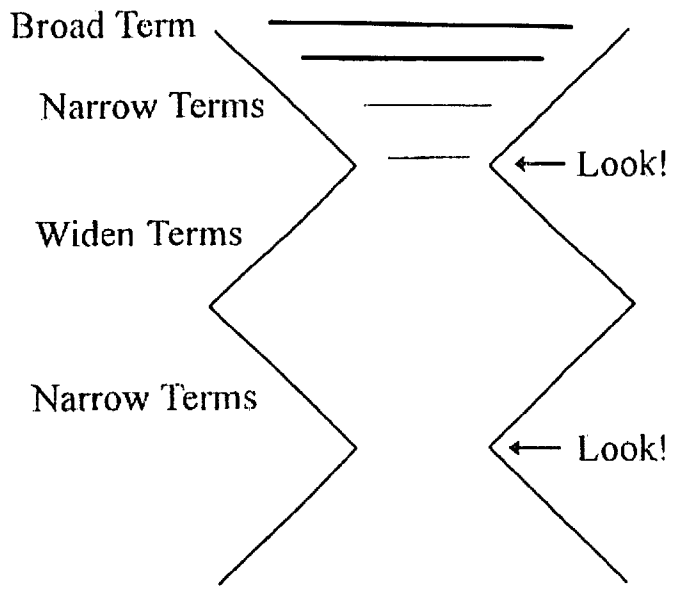
Circular Pattern Search

ERIC 1992 - 3/96

No.	Records	Search Request
#1	3464	DIVERSITY
#2	32	BIODIVERSITY
#3	751	BIOLOGICAL
#4	3464	DIVERSITY
#5	31	BIOLOGICAL DIVERSITY
#6	1306	BIOLOGY
#7	3464	DIVERSITY
#8	22	BIOLOGY & DIVERSITY
#9	327	ANIMAL
#10	3464	DIVERSITY
#11	6	ANIMAL & DIVERSITY
#12	358	PLANTS
#13	3464	DIVERSITY
#14	5	PLANTS & DIVERSITY
#15	515	PLANT
#16	3464	DIVERSITY
#17	9	PLANT & DIVERSITY
#18	200	WILDLIFE
#19	3464	DIVERSITY
#20	11	WILDLIFE & DIVERSITY
#21	191	SPECIES
#22	3464	DIVERSITY
#23	16	SPECIES & DIVERSITY
#24	180	GENE
#25	3464	DIVERSITY
#26	7	GENE & DIVERSITY
#27	25	GENES
#28	3464	DIVERSITY
#29	0	GENES & DIVERSITY
#30	938	CONSERVATION
#31	3464	DIVERSITY
#32	31	CONSERVATION & DIVERSITY

Search Strategy #3

Diamond Pattern



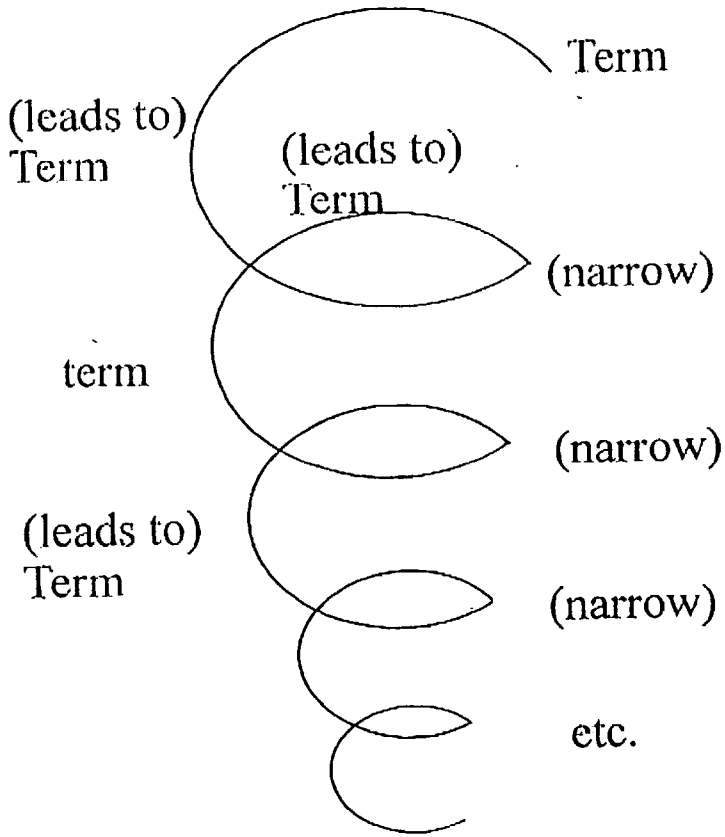
Diamond Pattern Search

ERIC 1992 - 3/96

No	Records	Search Request
#1	19842	CURRICULUM
#2	41527	ELEMENTARY
#3	8490	#1 AND #2
#4	4002	ENVIRONMENTAL
#5	106194	EDUCATION
#6	2184	ENVIRONMENTAL EDUCATION
#7	312	#3 AND #6
#8	19516	ACTIVITIES
#9	32	BIODIVERSITY
#10	11	#8 AND #9
#11	2	#7 AND #10

Search Strategy #4

Spiral Pattern



Spiral Pattern Search

ERIC 1992 - 3/96

No	Records	Search Request
#1	3464	DIVERSITY
#2	751	BIOLOGICAL
#3	50	BIOLOGICAL & #1
#4	327	ANIMAL
#5	2	ANIMAL & #3
#6	327	ANIMAL
#7	6	ANIMAL & #1
#8	515	PLANT
#9	2	PLANT & #3
#10	515	PLANT
#11	9	PLANT & #1
#12	358	PLANTS
#13	2	PLANTS & #3
#14	358	PLANTS
#15	5	PLANTS & #1
#16	191	SPECIES
#17	8	SPECIES & #3
#18	191	SPECIES
#19	16	SPECIES & #1
#20	938	CONSERVATION
#21	15	CONSERVATION & #3
#22	938	CONSERVATION
#23	31	CONSERVATION & #1

HTML	Hypertext Markup Language
URL	Universal Resource Locator
HTTP	Hypertext Transfer Protocol
Subject indexes	Hypertext documents with hierarchal menus of links, organized by subject
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Hit	A site that matches one or more of the words you searched

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National Library of Education (NLE)
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