

# G R E A T RESEARCH PROJECTS

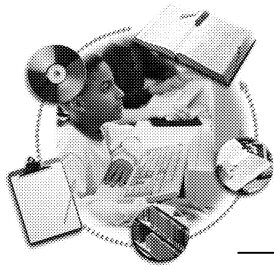
STEP BY STEP



Mary E. Mueller

J. WESTON  
**WALCH**  
PUBLISHER

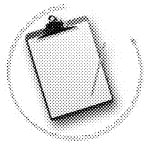
Portland, Maine



# CONTENTS

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<i>Acknowledgments</i> .....	<i>vii</i>
<i>About the Author</i> .....	<i>vii</i>
<i>To the Teacher</i> .....	<i>ix</i>
<i>How to Use This Book</i> .....	<i>xi</i>
<i>To the Student</i> .....	<i>xiii</i>



## **SECTION 1: PLANNING THE RESEARCH PROJECT ..... 1**

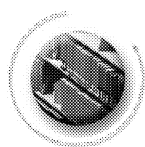
### **Materials on Project Planning and Design**

Linking Background Knowledge to the Research Project .....	3
Linking Background Knowledge to Research Project Objectives and Mastery Levels .....	4
Bloom's Taxonomy as Applied to the Research Project .....	5
Reading and Information Literacy Skills .....	6
Evaluative Rubric .....	7
Major Mechanical Errors .....	9
Student Contract .....	10
Research Process Steps and Date Due Checklist .....	11
Presentation Project Plan .....	12
Library Media Center/Classroom Project Form .....	13
Student Worksheet Checklist .....	14

### **Materials on Topic Focus and the Research Process**

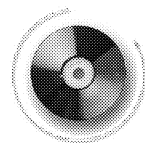
Selecting and Narrowing the Topic .....	15
Defining the Information Objective .....	16
Defining the Information Objective in Exploratory Research .....	17
Defining the Information Objective in Expository Research .....	18
Defining the Information Objective in Literary Research .....	19
Finding the Descriptive Information Objective: Researching the Book Report .....	20
Developing a Variant Information Objective: The Thesis Statement .....	21
Sample Thesis Statement/Theme Body Diagram .....	22
Framing the Information Objective (Various Outline Patterns) .....	23
Combination Pattern Outline .....	26
Sample Combination Outline .....	27
Outline Form .....	28
Research Project Planning Sheet .....	29

The Information Pyramid .....	30
Organizing the Information Search .....	31
Planning Your Library Visit .....	32
Collecting Information .....	33
Recording Your Findings .....	34
Recording Source Material .....	35
Documenting Your Research .....	36
Checklist for Completing the Research Process .....	37
Time Planner for Completing the Research Process .....	38
Checklist for Finishing the Research Project .....	39
Dominant Learning Style Survey .....	40
Selecting a Presentation Mode .....	41



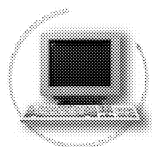
**SECTION 2: THE LIBRARY: STARTING OUT WITH PRINTED RESOURCES ..... 43**

The Dewey Decimal Classification System .....	44
DDC Numbers .....	45
Call Numbers and the Card Catalog .....	46
The Card Set .....	47
Using the Card Catalog .....	48
Subject Headings and the Card Set .....	49
The Electronic Catalog .....	50
Sample Electronic Catalog .....	52
Using the Electronic Catalog .....	53
Using Keywords .....	54
Boolean Logic Operators .....	55
Using Boolean Logic .....	56
Background Sources .....	57
Printed Reference Materials .....	58
Library Resources: Finding Information .....	62



**SECTION 3: USING ELECTRONIC RESOURCES ..... 69**

Using Electronic Resources .....	70
Keyword Searching Using Boolean Logic .....	71
Sample Search Screen .....	73
Electronic Materials: On-line, Web-based Databases .....	74
Library Resources: Finding Information .....	75
Electronic Materials: CD-ROM Databases .....	76
Library Resources: Finding Information I and II .....	77



**SECTION 4: RESEARCHING ON THE INTERNET ..... 79**

What Is the Internet? ..... 80

    Search Directory Comparison Chart ..... 81

    Search Engine Comparison Chart ..... 84

Search Engine Exercise ..... 88

General Searching Tips ..... 89

Determining Queries and Synonymous Terms ..... 90

Truncation: Expanding Your Search ..... 91

Search Operators: Narrowing Your Search I and II ..... 92

Designing Query Statements Using Boolean Operators and  
    Parentheses ..... 94

Designing More Query Statements ..... 95

Evaluating Web Sites ..... 96

Locating an Inaccessible Web Site ..... 97



**SECTION 5: USING ORIGINAL SOURCE MATERIAL ..... 99**

Original, or Primary, Sources ..... 100

General Netiquette Rules ..... 101

Electronic Mail ..... 102

Listservs, Chat Groups, and Newsgroups ..... 103

Electronic Communications Exercise ..... 104

Interlibrary Loan ..... 105

Interviews ..... 106

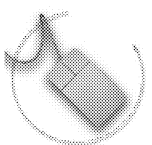
Tips for Conducting a Successful Interview ..... 107

E-Mail/Interview Planning Sheet ..... 108

Transcribing the Interview ..... 109

Diaries and Journals ..... 110

Art Forms, Music Forms, and Realia ..... 111



**SECTION 6: INTERESTING WEB SITES ..... 113**

Web Sites to Investigate During the Research Process ..... 114

*Works Cited* ..... 122

*Answer Key* ..... 125

## LINKING BACKGROUND KNOWLEDGE TO THE RESEARCH PROJECT

Project Topic	Necessary Background Knowledge	Possible Research Project Objectives
<b>American National Parks</b>	Understanding of the concept of a national park Knowledge of plant/animal wildlife Knowledge of United States geography	The student will list plants and animals existing in one national park.
<b>American Poets</b>	Understanding of the genre of poetry Recognition of famous American poets	The student will link each of five famous American poets to a masterpiece poem.
<b>American Presidents</b>	Ability to relate an American president to an era within American history	The student will relate American presidents to specific events.
<b>Classic and Antique Cars</b>	Knowledge of American transportation in the 1880–1920 era Knowledge of early American cars and their inventors Knowledge of the characteristics of early cars	The student will be able to describe the characteristics of early American cars and name early models.
<b>Endangered Species</b>	Knowledge of causes responsible for creating endangered animals and laws protecting endangered species Identification of endangered animals and their natural habitats	The student will be able to identify several endangered animals and their natural habitats.

## **LINKING BACKGROUND KNOWLEDGE TO RESEARCH PROJECT OBJECTIVES AND MASTERY LEVELS**

Project Background Knowledge	Research Project Objectives	Project Mastery Levels
Subject Content:		
Organization:		
Mechanics:		
Technology:		

## BLOOM'S TAXONOMY AS APPLIED TO THE RESEARCH PROJECT

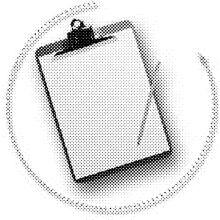
<b>HIGHER-LEVEL THINKING SKILLS</b>	Evaluating Information <b>Level 6 — Evaluation</b> appraise, argue, assess, attach, choose, compare, defend, estimate, evaluate, judge, predict, rate, select, support, value
	Reorganizing Information <b>Level 5 — Synthesis</b> arrange, assemble, collect, compose, construct, create, design, develop, formulate, manage, organize, plan, prepare, propose, set up, write
<b>ABILITY TO ORGANIZE AND USE INFORMATION</b>	Analyzing Information <b>Level 4 — Analysis</b> analyze, appraise, calculate, categorize, compare, contrast, criticize, differenti- ate, discriminate, distinguish, examine, experiment, question, test
	Applying Information <b>Level 3 — Application</b> apply, choose, demonstrate, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use, write
<b>ABILITY TO ASSIMILATE INFORMATION</b>	Understanding Information <b>Level 2 — Comprehension</b> classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, restate, review, select, translate
	Remembering Information <b>Level 1 — Knowledge</b> arrange, define, duplicate, label, list, memorize, name, order, recognize, relate, recall, repeat, reproduce, state
<b>READING MASTERY</b>	

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## READING AND INFORMATION LITERACY SKILLS

Level	Skill
<b>1: Knowledge</b>	<ul style="list-style-type: none"> <li>• Library materials must match reading comprehension level of student, or, preferably, be one level below student's reading comprehension level.</li> <li>• Students must be able to skim and scan library materials.</li> <li>• Students must be familiar with arrangement of library resources commonly used in research and know how to use these resources.</li> <li>• Students must understand purpose for research.</li> </ul>
<b>2: Comprehension</b>	<ul style="list-style-type: none"> <li>• Students must possess Level 1 skills.</li> <li>• Students must develop defined research questions.</li> <li>• Students must understand the concept of keywords and be able to ascertain keywords pertaining to their questions.</li> <li>• Students must be familiar with search strategies.</li> <li>• Students must be able to determine which library resource is the most appropriate when answering a given question.</li> </ul>
<b>3: Application</b>	<ul style="list-style-type: none"> <li>• Students must possess Level 1 and 2 skills.</li> <li>• Students must be able to interpret library materials.</li> <li>• Students must be able to answer defined, interpretative questions.</li> <li>• Students must be able to devise a strategy for transferring information.</li> <li>• Students must be able to transfer information from a specific source.</li> <li>• Students must be able to reorganize information according to a specific format.</li> </ul>
<b>4: Analysis</b>	<ul style="list-style-type: none"> <li>• Students must possess Level 1, 2, and 3 skills.</li> <li>• Students must be able to devise a strategy for appraising, differentiating, and categorizing information.</li> <li>• Students must be able to transfer categorized information from a specific source or sources.</li> <li>• Students must be able to reorganize categorized information according to a specific format.</li> </ul>
<b>5: Synthesis</b>	<ul style="list-style-type: none"> <li>• Students must possess Level 1, 2, 3, and 4 skills.</li> <li>• Students must be able to recognize information, which can be arranged and utilized to support an original idea.</li> <li>• Students must be able to devise a strategy for collecting information from source material to a schema supporting an original idea.</li> <li>• Students must be able to reorganize information to support an original idea.</li> </ul>
<b>6: Evaluation</b>	<ul style="list-style-type: none"> <li>• Students must possess Level 1, 2, 3, 4, and 5 skills.</li> <li>• Students must be able to assess and judge the validity of information within its context and for its stated purpose.</li> <li>• Students must be able to ascertain the value of information, using standards.</li> </ul>

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## SELECTING AND NARROWING THE TOPIC



Broad Topic (how, when, where, why?)  
Narrowed Topic (subtopic or new topic)  
Main Idea  
Supportive Points  
Examples

### Criteria for Narrowing Topics

1. Think of an interesting aspect of your topic. (Hint: how, when, where, why did your topic occur?)
2. Try to limit your topic or think of a subtopic as a new topic:
  - (a) Do not select a subtopic that is so broad it cannot be broken into three or four supportive points (e.g., the topic of animals).
  - (b) Do not select a subtopic that is so narrow it cannot be broken into supportive points or cannot generate supporting examples (e.g., the effect of rain on baseball games in Iowa).
  - (c) Do select a topic that is broad enough to allow for three or four supportive points that can be established by specific examples. For example, the topic of mountain-climbing dangers could be supported by incidents on Mt. Everest, Mt. Whitney, and Mt. Rainier.

### Other Considerations in Narrowing Topics

1. The length of the paper in respect to the topic: Can the supportive points and examples within the topic be adequately discussed?
2. The type and availability of library resources: Will library resources be accessible?
3. The time frame allotted to finishing the research assignment: Will there be enough time to complete research?



## DEFINING THE INFORMATION OBJECTIVE

An information objective is formulated from a narrowed topic that has a defined purpose or main idea. An information objective provides a research plan for gathering supportive examples.

Broad Topic: \_\_\_\_\_

Narrowed Topic: \_\_\_\_\_

Main Idea: \_\_\_\_\_

Supportive Points: \_\_\_\_\_

\_\_\_\_\_

Examples: \_\_\_\_\_

\_\_\_\_\_

Outline Pattern: \_\_\_\_\_

Preliminary Outline: \_\_\_\_\_

Presentation Mode: \_\_\_\_\_

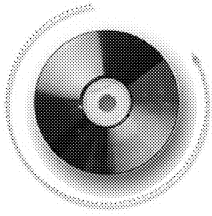


Teacher comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



## USING ELECTRONIC RESOURCES



### Electronic Databases

Within the library, printed resources are often supplemented by on-line, web-based databases and by CD-ROM products. These electronic resources offer easy access to magazine and newspaper articles without the paper.

Electronic information is also more current information: On-line databases are often updated daily, and CD-ROM products are updated more frequently than books. Not only do you obtain more accurate information, you can also retrieve specific information without the drudgery of sorting through many printed materials. Ease of use is a major reason for the popularity of electronic resources.

### Keyword Searching

Although the amount and type of magazine or newspaper articles included within each electronic database may differ, electronic resources are accessed similarly. Electronic, indexed information is represented by keywords. **Keyword searching** provides the **access point**.

Although author and title keywords are included within the electronic index, keyword searching by subject is the primary search mode. However, electronic products vary in ease. Some products utilize Library of Congress Subject Headings only. Others use Library of Congress Subject Headings, cross-referenced by keywords, in order to promote easy access. Finally, some electronic products provide a list of subject headings to help the user access information.

### Using Boolean Operators

Boolean logic is often included as an option in accessing specific information. By using the

Boolean operators AND, OR, NOT, you can expand, narrow, or limit your keyword searching to find information that combines ideas. Boolean logic is particularly useful when retrieving information on a specific topic.

### Retrieval Formats

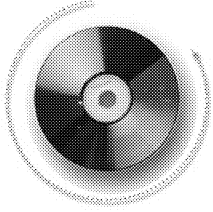
Finally, electronic information can be retrieved in several formats. Most desirable is the **full-text** option, in which the actual newspaper or magazine article can be printed. Another alternative may be an **abstract**, in which only a summary of the article can be printed. **Bibliographical information**, referring the user to another full-text source, is the least desirable format.

### Differences Among Databases

Although most electronic resources are designed comparably in keyword access and printing capabilities, they may differ in type and currency. On-line, web-based databases are composed of many individual databases, which are contracted through various vendors. These selected databases, updated daily, offer access to a variety of pamphlets, articles, and other reference sources. Examples of such web-based products are EBSCOhost, InfoTrac, and First Search (see handout titled "Electronic Materials: On-line, Web-based Databases").

Examples of CD-ROM databases are American Business Disc, New York Times, Academic Abstracts, and SIRS (see handout titled "Electronic Materials: CD-ROM Databases").





## KEYWORD SEARCHING USING BOOLEAN LOGIC

This exercise will help you find specific information using keywords and Boolean operators.

Determine and write a keyword search command to be used for each of the reports described below. Use the Boolean operators AND, OR, and NOT to expand, narrow, or limit your keyword search.

Example: a report comparing Mark McGwire's home runs to those of Sammy Sosa  
**home runs AND Mark McGwire OR home runs AND Sammy Sosa**

1. a report on recent Irish exports

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2. a report on tornado damage in Kissimmee, Florida

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3. a report on military buildup in the Persian Gulf

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4. a report on the resolution of the United Auto Workers

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5. a report on the effect of cigarette smoking on teenagers

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6. a report outlining the effects of the 1997–98 El Niño on the California coast

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7. a report comparing the nuclear status of Pakistan to that of India

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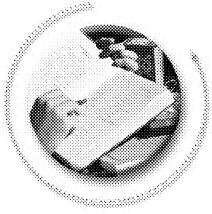
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8. a report comparing the skating performance of 1998 Olympic stars Tara Lipinski and Michelle Kwan

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## ORIGINAL, OR PRIMARY, SOURCES



Primary sources make library research come alive. Projects based on firsthand accounts portray subject matter more accurately. Like meals topped off with dessert, these projects are more complete.

### Types of Primary Sources

Primary sources recount original experiences. They exist in many forms. Electronic media include **e-mail**, **listservs**, **chat groups**, and **newsgroups**, in which personal experiences are communicated. **Interviews** are also valuable primary sources. **Diaries** and **published journals** often portray events from the author's perspective. They are often used by researchers to analyze a subject's thoughts, ideas, beliefs, motives, and character traits in an effort to explain the subject's actions. Finally, **art** and **music forms** and **realia** (personal objects), taken from the time of the event, convey prevailing attitude and mood. They also disclose the owner's personal taste and reveal conventional customs and mores.

### Using Primary Sources to Add Credibility

Within the research project, primary sources should be used whenever possible. As original evidence, firsthand accounts authenticate an assertion (position) made within the thesis, adding credibility to the entire statement.

### Using Primary Sources to Provide Documentation

Primary sources can also provide documentation for all supports within the thesis statement. For instance, an interview with Mark McGwire could provide both the supports and the evidence for the position that McGwire's ability to hit 70 homeruns during a single season was due to whatever reason he states!

As you plan your research project, try to add as many primary sources as possible. As original evidence, firsthand accounts will add an exciting dimension to your research project, making it come alive!

